JANIS 40
CHAPTER V

JOINT ARMY-NAVY
INTELLIGENCE STUDY

EUROPEAN U.S.S.R.

CLIMATE AND WEATHER

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Note: This chapter is based on material available in Washington, D. C., on 15 October, 1946.

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Chapter V

CLIMATE AND WEATHER

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50. INTRODUCTION

The climate of European U.S.S.R. is continental, characterized by severe, long winters and moderate, short summers. It is transitional between the maritime climate of western Europe and the arid climate of central Asia. In latitude the zone occupied by European U.S.S.R. is approximately the same as the zone between the Great Lakes and the Arctic coast of Canada. However, because the warm waters of the North Atlantic maintain relatively high temperatures in the air which moves eastward into Europe and western Asia, the climate of European U.S.S.R. is not so severe as that of an equivalent latitudinal zone in central North America or Siberia.

Summaries of data and conclusions based thereon nave been made for 52 stations (TABLE V-4 and FIGURE V-31) in and near European U.S.S.R. Because the topography is extremely uniform, only such climatic variations as can be explained by minor terrain difference (low hills, river basins, marshes) are orographic in origin. In general, the data concerning temperature, precipitation, thunderstorms, gales, and wind can be considered representative of conditions in the vicinity. Ceiling and visibility data however, show variations depending upon minor topographic features so that data from one station should not be considered representative of conditions at any distance from the station.

The temperature and precipitation in European U.S.S.R. vary with latitude and with distance from the relatively warm, moist, water areas of the North Atlantic. The coldest regions are in the north and east, the warmest in the south and west (FIGURES V-1 and V-2). Temperatures are below freezing for practically all stations during the winter months and range from the fifties to the low eighties in the summer. Precipitation shows a more random variation, but is generally greatest in the west and south and least in the east and north. Compared to the eastern United States and western Europe, precipitation is sparse over most of this area.

Cloudiness shows random variation because of the effect of local topography on the formation of stratus clouds. In general, the Arctic coast, Baltic coast, and coastal areas of the Gulf of Finland are the cloudiest regions of European U.S.S.R. The least cloudy areas are the Black Sea coast and the Volga-Caspian basin. The Ukraine is intermediate in cloudiness. Cloudiness is at a maximum in winter, at most stations but stations along the Arctic coast have a maximum in summer.

Low ceilings and low visibility are at a maximum in the winter for most stations, but some of the stations along the Arctic coast and Black Sea coast are exceptions, with the maximum frequency in summer. The regional variation of low ceilings and visibility is random, because local topographic influences exercise considerable control over the formation of radiation fogs and stratus clouds. In general, the expectancy is fewer than five days a month with ceilings low enough to affect flight operations adversely. Ten to twenty days a month can be expected with dangerously low visibilities sometime during the day.

Winds are distributed fairly evenly around the compass. The succession of low pressure centers through the region brings winds from all quarters. Wind velocity varies greatly, both gales and calms occurring frequently during the winter months. Upper winds also show a fairly even distribution around the compass, in the first 13,000 feet. Above this altitude, the frequency of westerly winds increases considerably (FIGURES V-16 to V-30).

Ground operations are greatly restricted by severe cold and snow in the winter and by muddy soil conditions in the spring and early summer. In the extreme northern regions the subsoil remains frozen during the entire year. Air operations are restricted mainly by the difficulty of keeping airstrips operational. Naval operations and water transportation are greatly restricted by ice conditions in winter months. Ports in the Crimea and in the Murmansk area remain open all year. All other ports are closed to navigation during part of the winter.

Regions favorable for agriculture from a climatic standpoint are the Ukraine and the Black Sea coast. In these areas, precipitation is usually ample, although droughts are not unusual. In the Caspian and Volga basins, irrigation is necessary for successful large-scale farming. Through the north-central region of European U.S.S.R., forests rather than open plains predominate and although the precipitation is ample and winters not too severe, there is no extensive cultivation. In the extreme north the marshy condition of the soil and the short growing season are unfavorable for agriculture.

Industrial development is not greatly restricted by climatic conditions, but, in the north, it is probably hampered by the increased need for protection against cold and storm, and by restriction of transportation. Construction during the winter and spring is difficult because of the unusual precautions which must be taken to prevent failure of structures as a result of freezing action and low temperatures.

51. GENERAL CLIMATIC-SYNOPTIC REGIME

A. Major climatic controls

The climate of European U.S.S.R. is controlled primarily by the extent, configuration, and surface characteristics of the land areas, the pressure distribution, the configuration and temperature of adjacent bodies of water, and the variations in incoming solar radiation and outgoing radiation from the earth.

The vast land area of Eurasia, of which European U.S.S.R. is a part, provides an excellent surface for large-scale heat transfer through radiational processes with consequent large fluctuations in surface temperature During the summer months, large amounts of incoming solar radiation heat the ground and set up strong convection currents. Where sufficient moisture is available in the atmosphere, cumulus formations result and rain showers occur. Over most of European U.S.S.R., a summer maximum of rainfall results (TABLES V-5 through V-7). During the winter, incoming solar radiation decreases to a low value and large amounts of heat energy are radiated to the atmosphere. The result is rapid cooling of the land surface and consequent low temperatures and radiation fogs. Along the coasts, the sea has a stabilizing effect on the atmosphere and temperatures are less extreme. Thus, the coastal areas of the Black and Caspian Seas, as well as the shore areas of the large lakes, bays, and gulfs, show higher winter temperatures and lower summer temperatures (TABLES V-15 through V-17). Even when the water surfaces are frozen, there is a certain amount of warming of the atmosphere, since the ice conducts heat to the atmosphere from the water beneath.

In general, there are no marked climatic variations caused by topographic features in European U.S.S.R. The entire area consists of a vast plain extending north from the mountain chain of southern Europe and Asia and is remarkably uniform in topography.

One noteworthy exception, however, is the effect of the mountain ranges of the Caucasus on the climate of the Volga basin. Warm, moist air originating in the Mediterranean moves northeastward and precipitates the greater portion of its moisture on the western slopes of the Caucasus Mountains (Kavkazckiy Khrebet). The air descending the eastern slopes of these mountains is dry and warmed adiabatically, causing arid conditions in the lower Volga and Caspian basins. Mean rainfall is greater in the central and northern Volga basin, away from the influence of the mountains. In addition to the heating of the air during descent from the mountains, air flowing from any direction into the Caspian basin, which lies below sea level, is warmed by downslope heating. Since little moisture is normally available for convective cloud formations in this area, the summer maximum of rainfall characteristic of most stations in European U.S.S.R. is absent. Instead, the lower Volga and Caspian basins show approximately equal mean rainfall from month to month. Rain over the lower Volga and Caspian areas is usually associated with cyclonic storms which move eastward from the Black Sea.

Although features of the pressure patterns over European U.S.S.R. are by no means as persistent as those over eastern Asia, and the variations in synoptic situations are similar to those occurring in western Europe and the United States, certain large-scale pressure systems dominate the summer and winter circulation. Over northern Asia, an extensive high pressure cell develops during the winter as a result of the cooling of the lower layers of the atmosphere by radiation. The western edge of this high pressure cell lies in the vicinity of the Ural Mountains (Ural'skiye Khrebet). Also during the winter, an extension of the Icelandic low pressure area forms over the warm ocean water to the north of Scandinavia. As a result of the continental *high* and the oceanic *low*, the prevailing winds north of about 50° are southerlies. Over the southern Volga and Caspian basins the prevailing winds are easterlies which are in the circulation on the southern edge of the mean high pressure system located north of the Caspian Sea.

During the summer the heating of the Asiatic land mass results in the formation of a vast heat *low*, the western side of which merges into the weakened summer Icelandic low pressure area. The result is a flat low pressure system over northern European U.S.S.R. Over the northern coastal areas northerly winds prevail. The North Atlantic high pressure cell extends eastward over southwestern Europe during the summer months and results in prevailing northwest and north winds over western and southwestern European U.S.S.R.

European U.S.S.R. has a considerably less severe climate than areas of Siberia and North America in a comparable latitudinal zone. This results largely from the stabilizing influence of the water areas. It can be seen that the mean winter isotherms (FIGURE V-1) lie roughly parallel to the Baltic Sea coast. The water of the North Atlantic is considerably warmer than normal for its latitude because of the North Atlantic drift current. Since there are no topographic barriers to block air flow from the west, relatively warm polar maritime air can invade European U.S.S.R. from the west and south. In addition, the waters of the Baltic Sea and the Gulf of Finland maintain relatively high temperatures along the coastal areas during the winter months. On the north coast of European U.S.S.R., the mean temperatures and the extent and duration of sea ice are largely dependent upon the location in relation to the warm extension of the North Atlantic drift current which passes to the north of North Cape and into the Barents Sea. As a result of this warm current, ports such as Murmansk are ice-free all year, while sea areas not benefited by the warm currents freeze. In southwestern U.S.S.R. the Black and the Caspian Seas prevent extreme temperature variations.

The variation of incoming solar radiation with latitude accounts for some of the peculiarities in climate in U.S.S.R. During the winter the days are short, the nights long, and as a result large amounts of heat energy are lost from the ground during the night which are not replaced during the day. Were it not for replacement of heat energy from other sources, e.g., warm air from ocean areas, the temperature drop would be considerably greater than it is. In the winter the northern coast receives very little direct radiation from the sun. In the summer, however, the days are extremely long, and the insolation exceeds even that at the equator. Extremely rapid mean temperature rises take place in May and June, and equally rapid falls in September because of the quick reversal in heat transfer. A short but warm summer, with extremely brief transitional seasons, is the result of this radiational variation.

B. Synoptic aspects of climate and weather

European U.S.S.R. is the western extremity of a vast source region of continental air masses. Thus, continental air-mass characteristics are intensified over the area, and maritime air masses undergo extensive modification. The sources, characteristics, modifications, and frequency

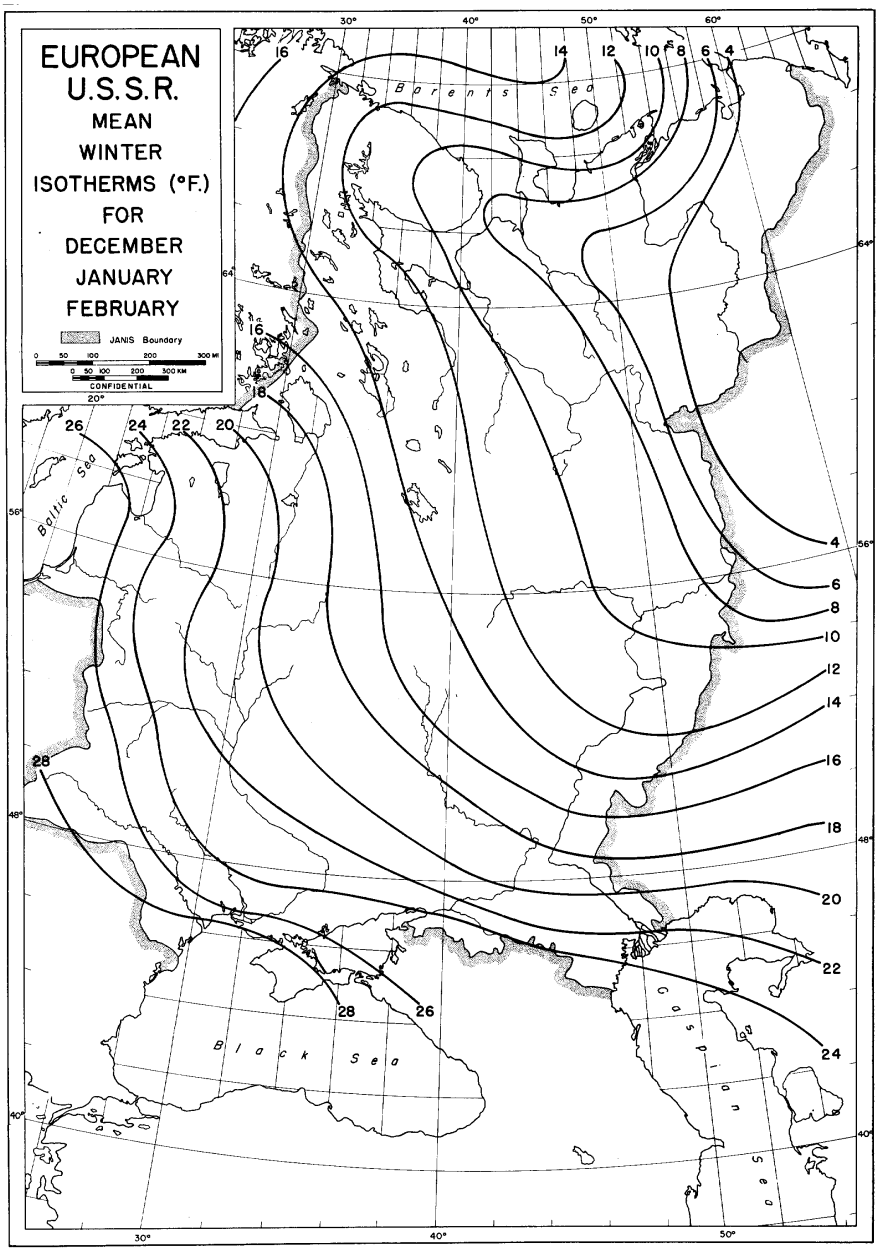

FIGURE V-1. *Mean winter isotherms* (°F.).

of four principal types of air masses as they appear over European U.S.S.R. are discussed briefly below.

(1) Polar continental air

During the winter months, the Asiatic land mass north of the mountain chain extending from the Caucasus to Indochina is a source region for polar continental air (cP). The snow cover, cold ground, and topography favor stagnation of the air, permitting extensive radiation and loss of water vapor from the low levels of the atmosphere. A large, semipermanent anticyclone composed of cP air forms over Asia during the winter. It extends to the Urals and frequently into Europe, bringing cP air from the southeast and east. The surface temperatures in cP air

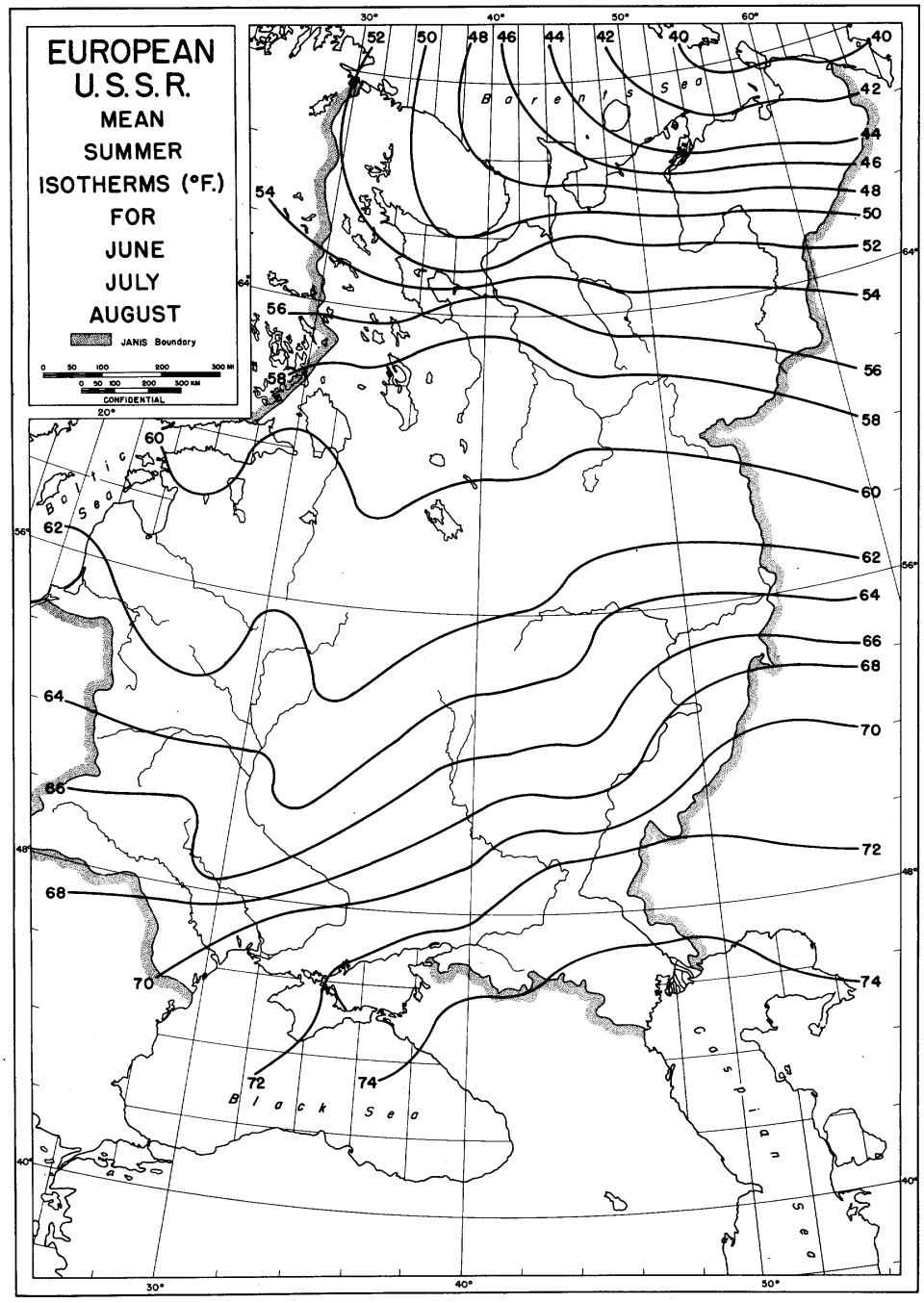

FIGURE V-2. *Mean summer isotherms* (°F.).

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vary greatly depending upon the surface over which the air moves and the magnitude of radiation. The lowest temperatures recorded in European U.S.S.R. are in cP air. Specific humidity is extremely low. Over European U.S.S.R. the cP air originating in Asia is rather shallow, being on the periphery of the cold dome centered in Siberia and Mongolia. Frequently, maritime polar air moves from the west in the upper-level winds over the cP air. This air is characterized by higher specific humidity and temperature. Maritime polar air from the North Atlantic is modified by passage over northern Europe and, when stagnated over eastern Europe, may be transformed to cP air. This cP air is not so cold or so dry as that originating over Asia. Although there is much variation in weather conditions in cP air, in general, low temperatures, low humidities, stable cloud forms (stratus), radiation fogs, and pronounced cold winter weather phenomena occur most frequently in cP air.

During the summer, northeastern Europe north of 50°N is a source region for cP air. Summer cP air masses are stable when first formed, but movement over warm land areas results in rapid heating at the surface and consequent unstable cloud forms. Summer cP air is similar to summer mP air.

(2) Maritime polar air

This type of air moves into European U.S.S.R. from the west and is modified by the land trajectory before reaching eastern Europe. Enough heat and moisture is retained in this air to keep the surface temperatures in European U.S.S.R. from dropping to the extremes reached in Siberia. The mP air is modified by cooling through radiation and contact cooling from below, and by drying of the air by precipitation and sublimation of moisture in the low layers on the snow. The high pressure cell occupying Asia during the winter months tends to block cyclonic systems moving in from the west. The moist air accompanying the cyclonic systems is forced aloft over the cold dome, and as a result mP air is frequently found over surface cP air. When mP air is modified to cP air over European U.S.S.R., the surface layers are modified first so that mP properties are evident only aloft.

(3) Maritime tropical air

This type of air reaches European U.S.S.R. only infrequently. The mountains of southern Europe and southwestern Asia block intrusions of mT air from the south and east. The only air reaching U.S.S.R. which exhibits mT characteristics originates in the Mediterranean and Black Seas and is considerably modified before reaching the Ukraine and Volga areas. This air shows mT properties only in the low layers because the water trajectory over the seas is quite limited. The southwesterly flow into cyclonic systems which move eastward across U.S.S.R. occasionally brings mT air in the upper levels of the atmosphere.

(4) Continental tropical air

This air arrives in European U.S.S.R. during the summer months from arid central and southwestern Asia. The dryness of cT air at its source is extreme but, as it passes into southeastern Europe, it absorbs moisture from the Caspian and Black Seas and other surface waters. The addition of moisture from the surface results in convective instability, clouds, and showers in southern Europe during the summer.

(5) Frontal weather

Although the sequence of frontal weather cannot be described by mean data, there are two "mean" frontogenetical fields which deserve mention. During the winter months, the combination of a warm-water area to the north of Europe with the prevailing southwesterly flow to the southeast of the Icelandic *low* results in a strong temperature gradient in the Barents and Kara Seas (Karskoye More). This zone of strong temperature gradient lies in an area of predominantly low pressure and is a zone of active frontogenesis. This frontogenetical area is called the Arctic Front. In the Mediterranean Sea another zone favorable for the formation of fronts is caused by the convergence of cold air from eastern Europe and warm air from the southern Mediterranean. Cyclonic storms originating in this area are responsible for the winter maximum of rainfall in the Mediterranean and southeastern Europe.

In the summer months, the frontogenetical zone in the Mediterranean dissipates as a result of the replacement of cP air in the north Mediterranean by warm continental air from Europe. In the Barents and Kara Seas, the Arctic Front moves southward in the summer months to cover northern U.S.S.R. The Arctic Front now is formed in a zone of convergence between cold maritime polar air and warmer continental air. The effect on the climate of north U.S.S.R. is to cause a rainy, foggy, and cloudy summer.

Cyclonic storms crossing European U.S.S.R. generally originate in the zones of strong temperature gradient in the eastern Atlantic. They weaken while moving across the continent because of the decrease in temperature contrast and removal from surface moisture supply. The winter cyclones are frequently blocked by the Asiatic high pressure cell when they reach eastern U.S.S.R., and the associated frontal system moves aloft over the cold dome or is forced northeastward into the southerly flow on the west side of the *high*. The winter precipitation received in central and northern U.S.S.R. occurs in cyclonic storms. Although the amount is relatively small, it falls as snow which accumulates until spring. The winter rainfall which occurs in the southern and southwestern portion of European U.S.S.R. occurs in the cyclonic storms which cross Turkey and the Black Sea. These storms are relatively infrequent, and the total rainfall received is consequently small.

Summer cyclonic systems over Europe are much less intense than those of winter, as is typical in temperate regions. However, precipitation which occurs in summer cyclonic storms exceeds that occurring in winter cyclones because of the greater instability of the summer air masses.

During the winter, the majority of frontal systems moving over European U.S.S.R. are occluded fronts. The circulation around the low pressure systems of the North Atlantic prevents cold air from the Arctic from moving southeastward over eastern Europe; consequently, outbreaks of polar air and accompanying cold fronts are not common. In addition, the air over the continent is considerably colder than the maritime air over the North Atlantic and there is no tendency for the Atlantic air to force the continental air aloft. Warm fronts are fairly common, particularly in the southern part of the area in connection with cyclonic storms. The warm fronts are frequently indistinct and located in the broad convergence area on the eastern side of cyclones. Occluded fronts are of the warm type with the air to the rear of the front of maritime origin and that ahead of the front of continental origin

In summer the frontal systems are weak, and occluded fronts originating in cyclones of the North Atlantic are predominant. Warm and cold fronts occur in connection with small cyclones which form over the continent in shallow low pressure areas.

52. PRACTICAL ASPECTS OF WEATHER AND CLIMATE

A. Weather and military operations

(1) Ground operations

The major factors affecting ground operations in European U.S.S.R. are *a*) precipitation, *b*) temperature, *c*) gales and blizzards, *d*) visibility, *e*) snow cover, and *f*) duration of frozen ground conditions.

(a) Precipitation

1. TYPE.—With very few exceptions, precipitation occurring during June, July, and August is in the form of rain. Stations in the extreme north report only rare snowfalls during the summer months. Stations in the south along the Black Sea coast report no snow from April or May until October or November (TABLE V-12). In the central regions the last snowfalls of the year are in late spring and the earliest in early fall. In intervening months precipitation is in the form of rain.

2. AMOUNT.—Mean yearly precipitation seldom exceeds 25 inches anywhere in European U.S.S.R. (TABLE V-5). Minimum annual precipitation occurs in the arid southwest near the Caspian Sea and in the extreme north on the islands in the Barents and Kara Seas. In these regions, annual precipitation is approximately 6 inches. Maximum annual precipitation occurs along the Baltic coastal regions and in the Ukraine where mean yearly amounts between 20 and 25 inches are recorded.

Mean monthly winter precipitation rarely exceeds 2 inches and only infrequently exceeds 1.50 inches. This precipitation falls as snow. One inch of rain (as all precipitation is recorded) is equivalent to approximately 11 inches of snow. Although annual precipitation is not so great as that in western Europe and the eastern United States, it should be remembered that winter precipitation remains on the ground until the spring thaw.

Mean monthly summer precipitation varies greatly from station to station because summer rainfall occurs primarily in the form of convective showers and the distribution of rainfall is not so uniform as it is in winter precipitation that occurs in cyclonic storms. In the Ukraine mean monthly summer rainfalls of about 3 inches are typical. In the arid Volga and Caspian basins, the summer monthly rainfall is approximately 0.5 inch.

Maximum winter monthly precipitation (TABLE V-6) on record is approximately 5 inches and occurs at the stations near the Baltic coast and the Black Sea coastal area. Maximum monthly summer rainfalls (TABLE V-6) average about 7 inches and occur in the Ukraine and near the Baltic Sea. Minimum monthly winter precipitation ranges from none to a few tenths of an inch at all stations. Minimum monthly summer precipitation (TABLE V-7) is reported as none at some stations in the southwest and at stations in the Volga and Caspian basins. Most stations report a few tenths of an inch as the lowest summer monthly rainfall on record.

3. FREQUENCY.—Along the northern Black Sea coast and in the Volga-Caspian basin the frequency of days with a trace or more precipitation (TABLE V-8) is less than 100 a year. This region shows a minimum in rainfall frequency for European U.S.S.R. Maximum frequency of days with precipitation occurs in the region along the Baltic coast. At Leningrad, for example, an average of 203 days with precipitation is reported.

The frequency of days with precipitation (TABLE V-8) shows little variation from month to month. Some stations show a slight maximum in winter and others in summer. The frequency of days with small amounts of precipitation (TABLE V-11) is also approximately constant for all stations, but the frequency of days with one inch or more (TABLE V-9) is at a maximum during the summer for most stations since the greatest amounts of precipitation occur in summer showers.

The annual frequency of days with snow (TABLE V-12) varies from about 10 along the Black Sea coast to about 160 on the islands in the Barents and Kara Seas.

4. INTENSITY.—Maximum 24-hour precipitation (TABLE V-10) during the winter months is less than 2 inches in all cases and averages about 0.8 inch. During the summer, the record 24-hour rainfall for the area occurred at Taganrog in July and the amount was 5.5 inches. Few stations report summer 24-hour precipitation records in excess of 3 inches.

(b) Temperature.—With few exceptions, mean daily maximum temperatures (TABLE V-16) are below freezing during the winter months. Mean daily maxima vary from 43°F. in December at Sevastopol' on the Black Sea coast to 5.5°F. in January at Ufa in the central west. Mean daily minima (TABLE V-17) for the winter months vary from 34.5°F. in December at Sevastopol' to -3.3°F. in January at Ufa. Extreme temperatures recorded during the winter months range from a high of 72°F. at Sevastopol' in February to a low of -52°F. at Mezén in December. These extremes are undoubtedly exceeded, particularly the minima, in regions for which data are not available.

In summer the mean daily maximum temperature varies between 85.5° F. at Astrakhan' in July and 49.3° F. at Helsinki in June. Variation in the mean daily minimum temperature is from 68.9°F. at Astrakhan' in July to 39.7°F. at Kola and Mezen' in June. Extreme temperatures (TABLES V-18 and V-19) recorded during the summer range from 110°F. in July at Astrakhan' to 14°F. in June at Ostrov Vaygach.

Lowest winter temperatures (TABLE V-19 and FIGURE V-1) occur in the northwestern parts of European U.S.S.R. in regions away from water areas. Highest winter temperatures (TABLE V-18) are recorded in the southeast near the Black Sea and near the waters of the Baltic. In summer the hottest weather (TABLE V-18 and FIGURE V-2) occurs in the southeast in the Caspian and Volga areas, and the coolest along the Arctic coast (TABLE V-19) and near the water areas of the Gulf of Finland.

(c) Gales and blizzards.—The cold, dry air which blankets European U.S.S.R. during the winter months is extremely uncomfortable when surface wind velocities are high. In addition to the physical discomfort caused by winds, visibility is reduced by blowing snow. The frequency of gales increases from south to north during the winter months, the number of days with gales (surface winds greater than 32 m.p.h.) varies from fewer than one per month in the south to 10 per month at Ostrov Vaygach (TABLE V-27). The frequency of days with blizzards (TABLE V-41) varies from zero per month in the south to approximately 5 per month during the winter season at some of the northern stations. Data concerning blizzards do not give visibility criteria and are not complete enough to describe any geographical pattern.

(d) Visibility.—Fogs, duststorms, blizzards, and heavy precipitation reduce visibility and affect the movement of motor convoys, the vulnerability of troops to low-level aerial attack, accuracy of visual aiming of weapons, and solution of tactical problems in the field. The visibility data (TABLES V-38 and V-39) show no uniform regional variation in days with low visibility. Small-scale topo-

graphic characteristics such as river valleys, low hills, and vegetation play an important part in controlling fog formation and dissipation. Consequently marked local variation in frequency of low visibility is to be expected. In general, the data show a maximum of low visibilities during winter and a daily maximum in the early morning. These maxima coincide with maxima of radiation fog. The maximum number of days per month with visibility less than 1¼ miles for all stations was recorded as 24.1 at Odessa in December at 0700. Several stations report no days with visibilities less than 1¼ miles at 1300.

(e) Snow cover.—The winter precipitation, although rather small compared to western Europe and the eastern United States, is almost entirely snow which stays on the ground until spring. Data on snow cover (TABLES V-13 and V-14) show the beginning of snow cover during late October or early November and the end of snow cover in April or early May. Mean depths of the deepest snow cover range from 26.8 inches at Arkhangel'sk to only a few inches at the southern stations. Deepest snow cover occurs in the latter part of the winter when snow has accumulated, but temperatures have not risen high enough to permit appreciable thawing.

(f) Duration of frozen ground conditions.—Thawing in spring and the run-off of meltwater causes extremely muddy soil conditions and consequent restrictions in ground operations. In the subpolar regions of the Arctic Sea coast, the subsoil is permanently frozen and the spring run-off is partially trapped in the surface layers of the soil. The result is large areas of impassable marshy soil which persist until freezing occurs again in the fall. In addition the rivers flowing into the Barents and Kara Seas thaw in their headwaters (the southern end) before the break-up of ice at the mouth, and floods affecting large areas result. These floods occur every year, isolating some of the northern cities and making surface transportation over the river basins impossible.

Over most of European U.S.S.R., however, muddy conditions last only until the snow has melted and run off. In lieu of more specific data, it is assumed that the ground will be continuously frozen during the months when the mean maximum temperature is below freezing (TABLE V-16). Using this criterion, the range in duration of frozen ground is from November to April at the northern stations and from November or December to February in the central and Ukrainian stations. At Sevastopol' and other locations in the Crimea, no permanently frozen ground is to be expected.

(2) Air operations

(a) Low-level operations.—The meteorological factors which affect low-level air operations are 1) ceiling, 2) visibility, and 3) flight conditions at terminals.

1. CEILING.—Ceilings below 1,000 feet restrict low-level fighter and bomber operations. The uniformly flat topography permits safe low-level operations over most of European U.S.S.R. with ceilings greater than 1,000 feet. Data on ceilings (TABLE V-35) show that the number of days with ceilings below 1,000 feet is at a maximum in winter and a minimum in summer for most stations. Afternoons are slightly more favorable than mornings throughout the year.

Since low ceilings are most frequently caused by stratus clouds whose formation is partially controlled by minor local radiation and topographic conditions, the frequency of days with low ceilings shows a random geographical pattern. Generally fewer than 5 days a month with ceilings less than 1,000 feet can be expected. The extreme range for the reporting stations is from 21.5 days at Smolensk in December to no days at several stations during the summer months.

2. VISIBILITY.—Visibility should be at least 2½ miles for low-level operations. Reduced visibility is usually caused by fog, dust, blizzards, or heavy precipitation. Fog is the most common restriction, and it occurs frequently in winter as a result of outgoing radiation so that low visibility is most common during that season. Visibility conditions in the afternoon are slightly better than those in the morning. As with ceilings, the frequency of low visibility shows random variation from station to station.

Visibility data (TABLE V-39) show between 10 and 20 days a month during winter with visibility below 2½ miles at most stations. In summer the frequency drops to fewer than 10 days a month at most stations. Extremes range from 25.8 days at Odessa in July to no days at a few stations during summer. Most stations report fewer than 5 days a month during summer.

3. FLIGHT CONDITIONS AT TERMINALS.—Contact flight conditions are required for efficient and safe operations at air bases. The criteria for contact conditions are ceiling above 299 meters and visibility greater than 3,999 meters This corresponds as closely to the standard contact criteria as the data will allow.

Considerable variation in the frequency of contact flight conditions are evident (FIGURE V-3). During winter, most stations show a maximum frequency of contact conditions in the middle of the day. In summer there is less hourly variation, because visibility is less affected by radiation fogs during this season. Large variations in the frequency of contact conditions between stations in the same geographical regions are caused by minor topographic differences.

Range in frequency of contact conditions during winter is from 6.0% at Mezen' in February to 87.7% at Ural'sk in December and January. In summer the lowest frequency reported is 37.7% at Odessa in July, and the highest frequency is 99.7% at Stalingrad in July.

(b) High-level operations.—Meteorological factors affecting high-level visual bombing operations are 1) cloud cover below the aircraft, and 2) flight conditions at terminals.

1. CLOUD COVER BELOW THE AIRCRAFT.—For optimum operating conditions, cloud cover below the aircraft should not exceed 20%. As very few clouds exist at altitudes above 30,000 feet at the latitudes of this area, this criterion corresponds roughly to a total cloud cover of 20%. Data on the number of clear days (TABLE V-31) show a range from 1 to 6 days a month during winter. During summer, the number increases to 10 to 20 days a month for a few stations in the south, but in general there is only a small increase over winter.

High-level visual bombing is possible though difficult with total cloud cover between 30% and 70%, and days with such conditions are considered fair operational days. Data on the number of partly cloudy days (TABLE V-32) show from 7 to 14 fair operational days a month during winter. In summer the range of fair operational days is from 12 to 22 with only Ostrov Kolguyev, located in the zone affected by the Arctic Front, showing lower values.

In general, stations in the south and east show the highest frequency of optimum and fair operational days. Those in the north and west show the lowest frequency.

2. FLIGHT CONDITIONS AT TERMINALS.—Contact flight conditions have been discussed under low-level operations (Topic 52, A, (2), *(a)*, 3).

(c) Incendiary bombing.—Meteorological factors affecting visual incendiary bombing are 1) surface wind

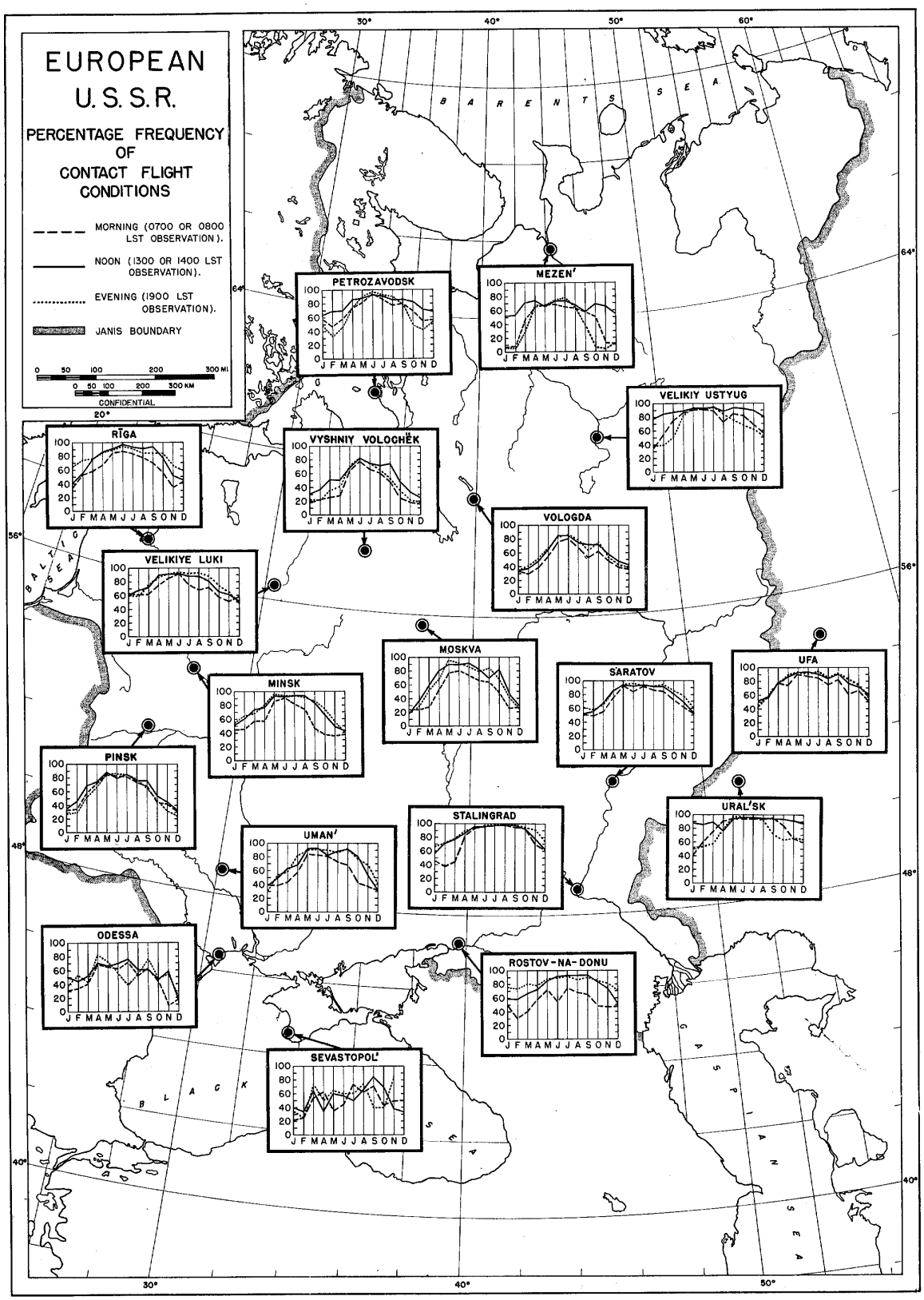


FIGURE V-3. *Percentage frequency of contact flight conditions at specified hours.*

speed, 2) humidity, 3) precipitation, 4) snow cover, 5) cloud cover, and 6) flight conditions at terminals.

1. SURFACE WIND SPEED.—Surface wind speed affects the rate at which fires spread. High winds are most favorable for attack; winds of force 4 or more (13 m.p.h. or greater) are considered as optimum conditions. Frequency of occurrence of optimum wind conditions for typical stations (TABLE V-1) shows no regular diurnal or seasonal variation. In general, a higher frequency of optimum winds can be expected during the noon hours, but this is not true of all stations. Lowest frequency of optimum winds (4.4%) occurs at Velikiy Ustyug in July; highest frequency (76.4%), at Riga in January.

TABLE V - 1

PERCENTAGE FREQUENCY OF WINDS FAVORABLE FOR INCENDIARY BOMBING (13 M.P.H. OR GREATER)

		JAN	APR	JUL	OCT
NORTHWESTERN COAST					
Kola	0700	33.8	20.7	29.6	16.7
	1300	24.2	27.0	41.6	24.0
	2100	23.9	18.3	45.5	20.3
BALTIC COAST					
Riga	0900	76.4	46.7	30.1	49.7
	1500	55.0	63.5	46.7	59.8
	2100	56.2	45.2	27.7	46.9
NORTHEAST INTERIOR					
Velikiy Ustyug	0700	20.5	11.6	6.4	13.7
	1500	25.7	30.4	4.9	28.7
	1900	18.6	10.1	4.4	14.3
UKRAINE					
Kiyev	0700	22.3	22.4	8.5	10.6
	1300	23.7	36.6	18.5	14.8
	1900	22.9	14.6	6.8	10.4
VOLGA BASIN					
Stalingrad	0700	40.8	34.6	17.8	20.5
	1300	34.6	50.8	32.8	33.9
	1900	28.4	28.4	18.4	20.2
BLACK SEA COAST					
Sevastopol'	0700	36.4	25.1	7.8	21.8
	1300	51.2	58.6	62.6	50.3
	1900	30.1	27.2	23.3	24.3

2. HUMIDITY.—Humidity affects the degree of dryness of combustible material exposed to the atmosphere. Mean relative humidity values vary between the upper fifties and nineties (TABLE V-23). However, the winter temperatures are so low that even if the air were saturated, it would contain relatively small amounts of water. Qualitatively, it may be said that combustible materials exposed to the atmosphere will be well dried during the winter months. During the summer, central and southern U.S.S.R. have dry weather interrupted by showers. Dryness of vegetation will vary considerably depending upon the distribution of showers. In northern U.S.S.R. along the Arctic coast, the summers are rainy and foggy and moisture is readily available to prevent drying of exposed materials. In the far north, marshy soil also prevents drying of combustibles near the soil.

3. PRECIPITATION.—Precipitation during the summer is effective in maintaining moisture content in combustibles. Winter precipitation falls as dry snow over most of U.S.S.R. and is not effective in maintaining moisture content. Precipitation data (TABLES V-5 to V-11) show the geographical and seasonal variations to be expected in moisture supply.

4. SNOW COVER.—Thick snow cover over most of European U.S.S.R. during the winter is effective in restricting successful incendiary attack. Vegetation and roofing are snow-covered. Data on the duration and mean depth of snow cover are given in TABLES V-13 and V-14.

5. CLOUD COVER.—Cloud cover limits are approximately the same as those shown under high-level bombing. Usually less accuracy is required in incendiary attacks; consequently, the frequency of favorable conditions will be somewhat greater than those shown in TABLES V-31 and V-32.

6. FLIGHT CONDITIONS AT TERMINALS.—Contact flight conditions are described under low-level operations (Topic 52, A, (2) *(a)* 3.).

(d) Parachute operations.—Meteorological factors affecting parachute operations are the same as those affecting low-level operations. In addition, surface wind speed must be low. Data on frequency of low wind speeds for 6 typical stations (TABLE V-2) show that mornings and evenings are most favorable for parachute operations; also, summer months are, in general, most favorable. However, there are exceptions to this rule. The frequency of days favorable for parachute operations from the standpoint of winds is greater than 50% in most cases.

TABLE V - 2

PERCENTAGE FREQUENCY OF WINDS FAVORABLE FOR PARACHUTE OPERATIONS (12 M.P.H. OR LESS)

		JAN	APR	JUL	OCT
NORTHWESTERN COAST					
Kola	0700	66.2	79.3	70.4	83.3
	1300	75.8	73.0	58.4	76.0
	2100	76.1	81.7	54.5	79.7
BALTIC COAST					
Riga	0900	23.6	53.3	69.9	50.3
	1500	45.0	36.5	53.3	40.2
	2100	43.8	54.8	72.3	53.1
NORTHEAST INTERIOR					
Velikiy Ustyug	0700	79.5	88.4	93.6	86.3
	1300	74.3	69.6	95.1	71.3
	1900	81.4	89.9	95.6	85.7
UKRAINE					
Kiyev	0700	77.7	77.6	91.5	89.4
	1300	76.3	63.4	81.5	85.2
	1900	77.1	85.4	93.2	89.6
VOLGA BASIN					
Stalingrad	0700	59.2	65.4	82.2	79.5
	1300	65.4	49.2	67.2	66.1
	1900	71.6	71.6	81.6	79.8
BALTIC SEA COAST					
Sevastopol'	0700	63.6	74.9	92.2	78.2
	1300	48.8	41.4	37.4	49.7
	1900	69.9	72.8	76.7	75.7

(3) Naval operations

Weather, good or bad, is an important element in planning combined naval operations. Normally, good weather conditions are desired, but at times it may be more desirable to use bad weather as a cover to conceal fleet movements. Before the probability of favorable weather can be established, the type of weather desired for a specific operation must be determined. This report will be confined to a discussion of the weather factors which are most important from a general operational standpoint: surface winds, ice conditions, sea and swell, cloud cover, precipitation, and visibility.

Since the coast line of European U.S.S.R. is broken naturally into three distinct sectors for which the characteristic weather varies considerably; i.e., the north coastal sector, including the Barents Sea, Kara Sea (Karskoye More) and White Sea (Beloye More); the west coastal sector, including the eastern Baltic Sea and the Gulf of Finland; and the south coastal sector, comprising the Black and Caspian Seas and the Sea of Azov (Azovskoye More), these areas will be treated separately. In cases where detailed information was sparse for ocean regions, climatic conditions have been inferred from the observational data for coastal stations, the available ocean data and general information regarding synoptic processes in the area.

(a) Winds

1. NORTH COASTAL SECTOR.—In autumn, winter, and early spring, winds in the Barents and Kara Sea region are generally south-southwesterly to southerly. Severe gales accompany the passage of cyclonic storms and cause the winds to reach or exceed force 7 (32 m.p.h.) along the open coast on 7 or 8 days a month from November to February, inclusive, on 5 days a month in March, and 3 in April and October. The direction changes to north and the velocity decreases throughout the area in April with winds of force 7 or stronger occurring fewer than 3 days a month from May to September. In sheltered inlets and in the estuaries of the White Sea strong winds and gales are rare, the velocity averaging less than 10 knots all year round.

2 WEST COASTAL SECTOR.—In winter the winds over the eastern Baltic and the Gulf of Finland prevail from the southwest or south. The succession of deep *lows* which pass over the area cause frequent winds of gale intensity over the open sea areas but most coastal ports are sheltered from the strong winds, experiencing gales on an average of 3 or 4 days a month from November through January and 1 day each month during the remainder of the year. From May through September the prevailing winds are from the west or southwest and remain comparatively light (less than 10 knots).

3. SOUTH COASTAL SECTOR.—Summer winds over the area are light (averaging 8 to 10 knots) and mainly westerly. During the winter the winds prevail from the east (12 to 15 knots) with Astrakhan' showing predominantly east winds in every month except June. On the Kerch Peninsula (Kerchenskiy Poluostrov) winds are variable at all seasons and calms are frequent, occurring 20% to 25% of the time throughout the year.

Gales are more frequent in the winter and spring than during the summer months. At Taganrog an average of 5 or 6 days a month with winds of force 7 or stronger is recorded. At Kerch' winds of gale force are less common but are noted on 1 or 2 days each month throughout the year. When a depression lies over the Black Sea during winter, very strong cold winds of the bora type occur at Novorossiysk.

The winter winds over the open sea areas are predominantly easterly, reaching gale force or higher on 7 or 8 days a month from January to April.

(b) Ice conditions.—The mean monthly limits of advancing ice, generally unnavigable even to heavy ships, are indicated in FIGURE V-4 foi the north and west coastal sectors from November to March. FIGURE V-5 shows the limits of the retreating ice from February or March to June for the same areas.

1. NORTH COASTAL SECTOR.—Navigation without the aid of ice breakers is difficult even during the most favorable months of August and September in the Kara Sea. Early in October ice begins to form in the small bays and inlets of the Barents and White Sea coasts and both seas are closed to navigation from November through May. However, with the aid of ice breakers some shipping is carried on until the end of December, beginning again in April. Ice breakers can maintain free shipping lanes all year round at Arkhangels'k, but the rest of the ports on the White Sea are completely icebound for 150 to 180 days each year and are closed again for several days each spring when the break-up of ice fills the channels with floating blocks of varied sizes, creating a definite hazard to shipping. From mid-May to mid-October the Barents and White Seas are ice-free.

2. WEST COASTAL SECTOR.—The shores of the Gulf of Finland are blocked with ice 140 to 150 days yearly, from early in November to the end of March. All the ports on the Gulf and the eastern Baltic are closed more than 40 days each year with Vyborg (Viipuri) and Leningrad ice-locked more than 100 days each. The open sea is ice-bound 30 to 50 days during the period of most severe icing from mid-January to mid-March. From mid-April to December the Baltic area is ice-free; the Gulf of Finland is free of ice from mid-May to October.

3. SOUTH COASTAL SECTOR.—The ports on the Black and Caspian Seas are kept open during the entire winter with the aid of ice breakers, though ice forms throughout January and February each year. The Sea of Azov is frozen over for about 80 days from mid-December to mid-March, but limited navigation is maintained with ice breakers.

(c) State of sea and swell

1. NORTH COASTAL SECTOR.—From October to January the seas are persistently moderate to rough with very rough to high seas on 6 to 8 days each month on the Murman Coast (Murmanskiy Bereg). Also, there are 10- to 15-foot swells over the open sea from the south and southwest. From January to May the Kara Sea, White Sea, and eastern Barents Sea are frozen. The state of the sea along the Murman Coast is quieter with swell accompanying only the rare northwesterly wind. The winds are strong enough on fewer than 6 days each month to produce a sea of more than 3 to 4 feet inshore or waves at sea which would reach the shore as a swell of more than 5 feet.

2. WEST COASTAL SECTOR.—Over the eastern Baltic and the Gulf of Finland, storms are most frequent in November and December with 8 gale days each month accompanied by moderate to rough seas (3 to 8 feet). From January to April the area is ice-locked, and seas are generally low. Winds reach gale intensity on only 1 or 2 days each month for the remainder of the year. The prevailing winds for this period are light southwesterly, and the seas remain 3 feet or less from the southwest.

3. SOUTH COASTAL SECTOR.—During the autumn, winter, and early spring the prevailing winds are easterly, varying from northeast to south-southeast for more than 200 days each year. For Odessa and Yalta on the Black Sea and Astrakhan' on the Caspian Sea, south and southeast winds have the longest sweep and bring very rough to heavy seas (8 to 15 feet) on 5 to 8 days each month during the winter. These ports and the neighboring beaches are protected from the strong west to northwest winds of the summer storms which bring 5- to 10-foot seas to Sevastopol' and the other coasts exposed to the west.

(d) Clouds and precipitation

1. NORTH COASTAL SECTOR.—Average cloudiness exceeds 75% coverage throughout the year over the Barents and White Seas with fewer than 30 clear days and more than 180 cloudy days yearly. Maximum cloudiness occurs from June through October. Much of the cloud is low

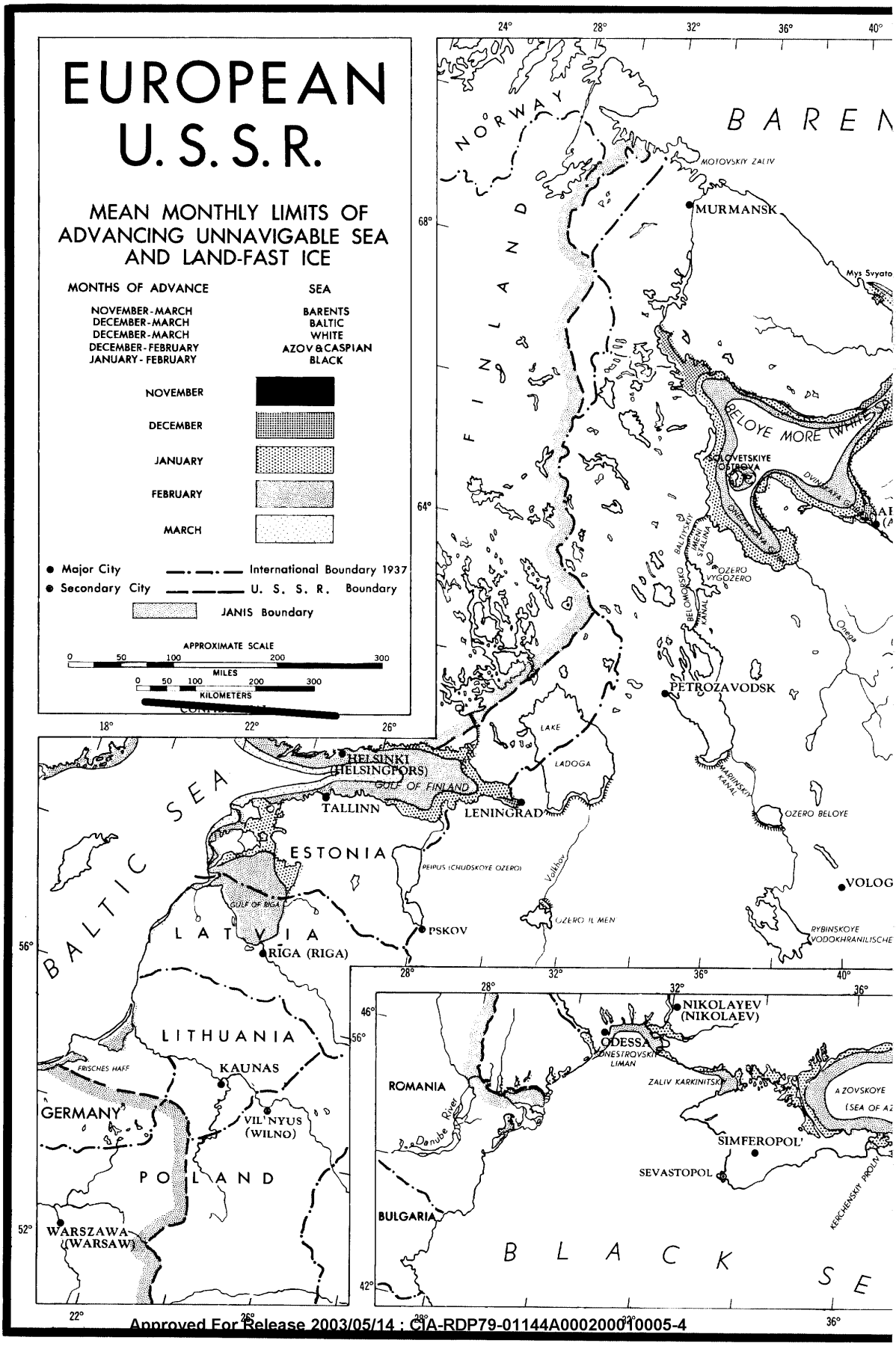
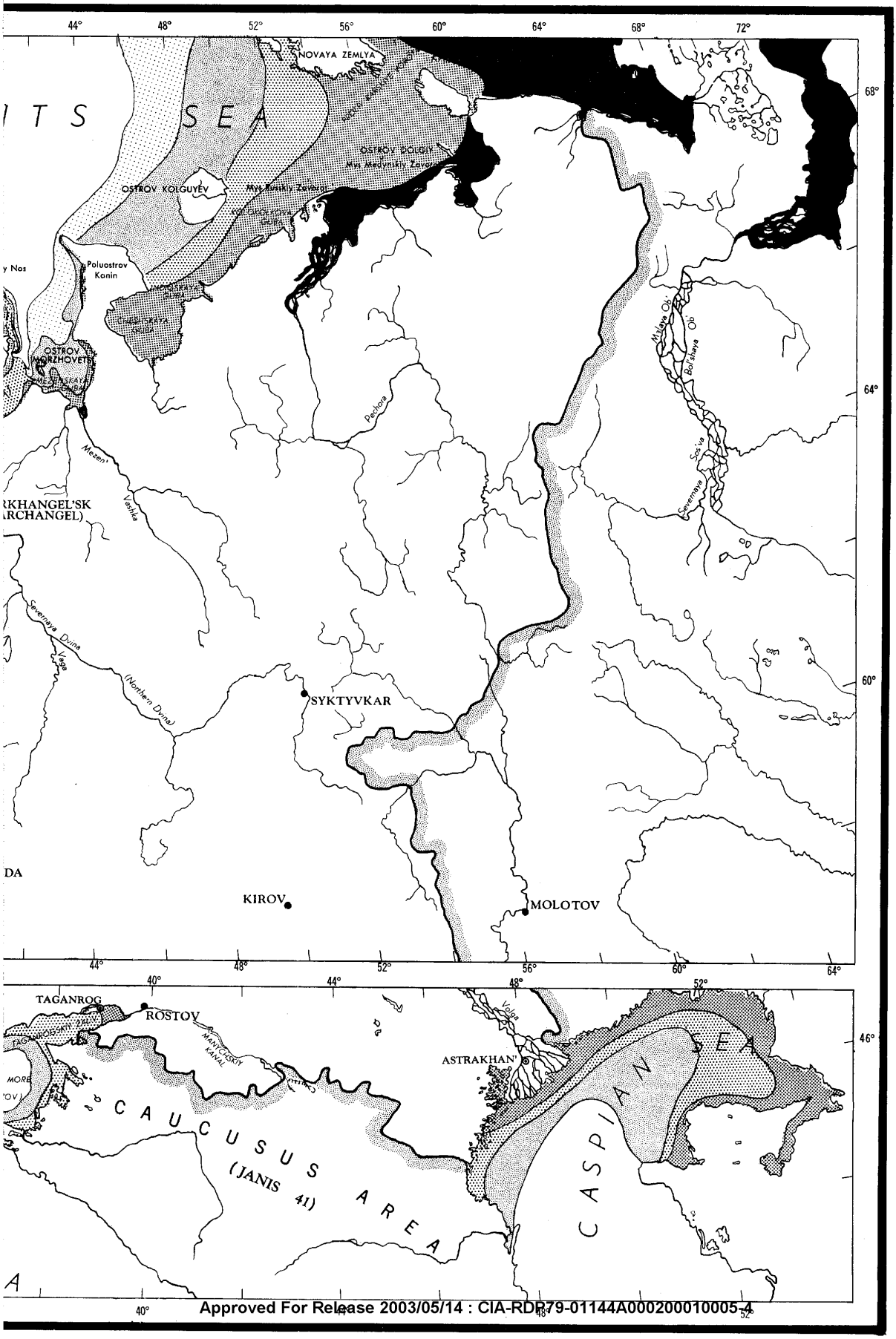


FIGURE V-4
MONTHLY LIMITS OF ADVANCING ICE
JANIS 40
~~CONFIDENTIAL~~



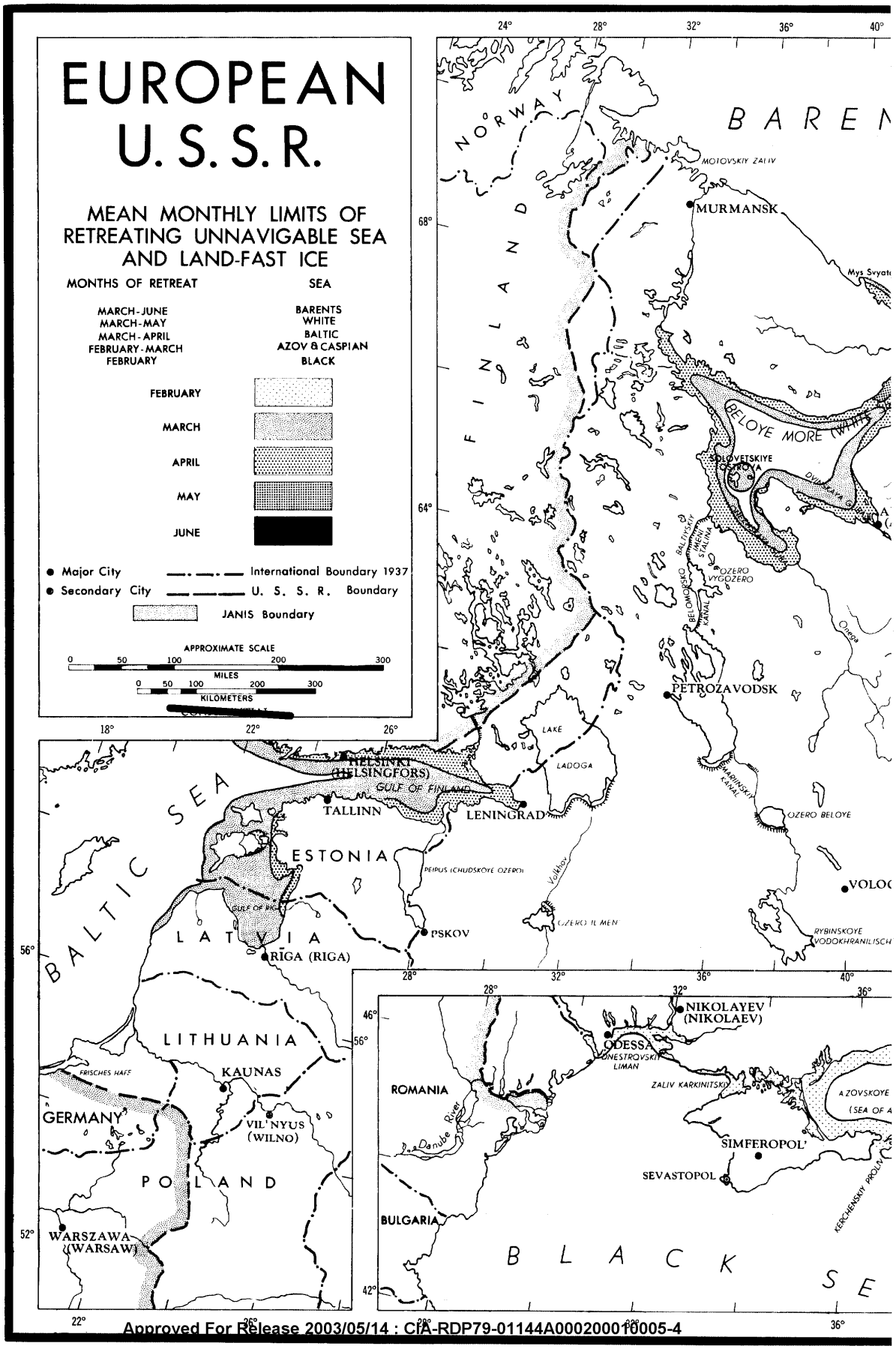
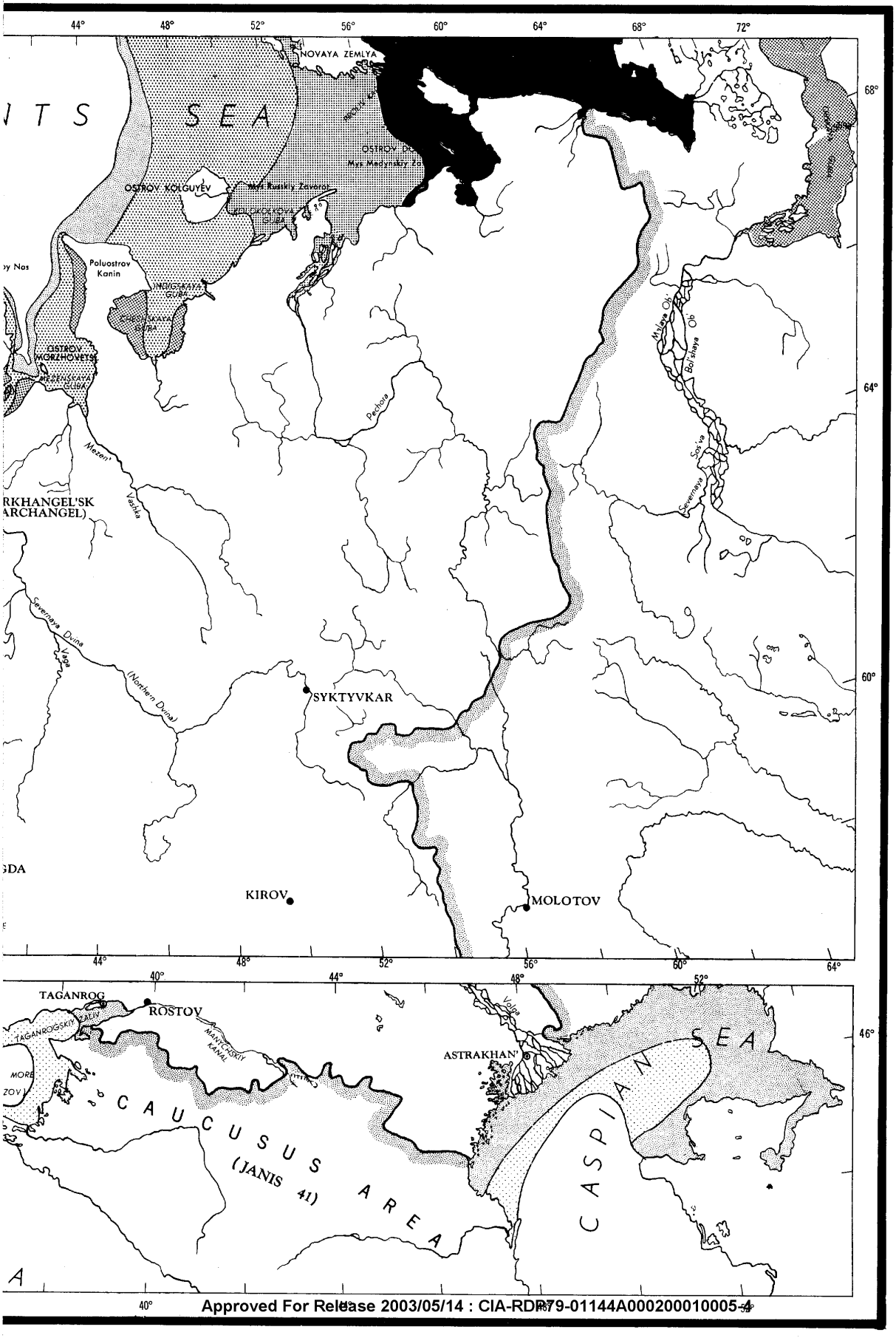


FIGURE V-5
MONTHLY LIMITS OF RETREATING ICE
JANIS 40
CONFIDENTIAL



morning stratus with bases at 500 to 800 feet. Minimum cloudiness occurs in March and April.

Over the ice of the Barents and Kara Seas the usual cloud form is a uniform stratus layer below 5,000 feet covering the whole sky throughout the year although it is somewhat less frequent in summer than in winter and spring.

The amount of precipitation is small, decreasing from south to north and nowhere exceeding 20 inches per year. The months from November to May are relatively dry with a short season of moderate rain from June to October. In the winter snow falls on 10 to 15 days each month, accumulating until the spring thaw. On 170 to 190 days each year some precipitation may be expected, the average fall being 0.1 to 0.2 inches.

2. West Coastal Sector.—During July and August the eastern Baltic and the Gulf of Finland have less than five-tenths of the sky covered by clouds. In October and November more than 10 days each month have overcast or almost overcast skies. Cloud types over the Baltic change from a cumuliform type with maximum cloudiness during the night in August, to sheets of stratocumulus with a morning maximum in November and December. Frequency of low clouds is greater in the autumn than during the summer but the maximum of low cloud occurs in the winter.

The rainfall averages between 20 and 30 inches a year with a maximum in August and October of 3 to 4 inches and an average of 2 inches per month throughout the rest of the year.

3. South Coastal Sector.—In midwinter, cloudy skies prevail on 2 days out of 3 with stratocumulus layers at 2,000 feet or less occurring with the winter anticyclones. Clear days are rare in winter, but clear mornings are general in the summer when cumulus clouds form during the afternoon. Cloud amounts over the area range from 3 to 4 tenths in August to 7 to 8 tenths in November and December.

In the summer, precipitation is in the form of thundershowers during the afternoon and evening. In winter, occasional depressions move eastward from the Mediterranean and bring heavy clouds and snow over a wide area. Precipitation amounts average 10 to 15 inches over the Black Sea and 7 to 8 inches per year over the Caspian.

(e) Visibility

1. North Coastal Sector.—Poor visibility is frequent at all seasons throughout the area, and is lowest in winter when there is a maximum of fog over the estuaries of the White Sea and along the Barents coast wherever the prevailing southerlies are onshore winds. Fog and dense fog are most common in January with a morning maximum in the White Sea area. Over the Kara Sea, fog appears for 10 to 15 days a month from June to August and poor visibility prevails throughout the spring and autumn, improving at sea with the approach of winter. Over the Arctic Ocean and to a lesser extent along the Murman Coast, poor visibility is most prevalent in summer and early autumn with a maximum of occurrence in the morning. During the winter, visibility is also reduced by the blowing snow and blizzards that accompany the passage of the storms which cause 8 to 10 days of gale winds in the open sea areas each month.

2. West Coastal Sector.—Sea fogs are most common over the southeastern Baltic in March and April and are only slightly less common in May, June, and July. The sea fogs are frequently carried inland for short distances by the onshore breezes. Ports on the Gulf of Finland have fog 8 to 10 days a month in the autumn and winter with only 0.5 to 1.5 days of fog during the summer months.

3. South Coastal Sector.—Fog in the summer is rare though not unknown over the Black Sea. In other seasons the frequency of poor visibility in the mornings is high. Fog is recorded 8 to 10 days per month from December to March at Odessa and 5 to 6 days per month during the same period at Kerch' on the Caspian.

(4) Amphibious operations

The weather factors which are significant in planning amphibious operations include sea and swell, surface winds, land and sea breezes, visibility, cloud cover, freezing rain or spray, and snow. Sea and swell have been covered in general in the preceding section on naval operations and in detail in Chapter III, Oceanography. Visibility and cloud cover have also been treated under naval operations (Topic 52, C), and this discussion will be confined to a treatment of surface winds insofar as their velocities affect landing operations, land and sea breezes, freezing rain or spray, and snow. The north coastal sector is ice-locked from November to May. From January to April the Baltic Sea and Gulf of Finland are icebound. Along the coasts of the southern sector, ice would prohibit amphibious operations as presently developed throughout most of December, January, and February each year.

(a) Surface winds and waves.—Surface wind speed influences amphibious operations through its effect on wave height. The relationship between the surface wind speed and wave height depends upon the exposure of the particular coastal area under consideration, the distance over which the wave-producing winds blow, the duration of the winds, and the topography of the bottom offshore.

1. North Coastal Sector.—Along the north coast during the months from May to October, when the seas are free enough of ice to permit amphibious operations, the prevailing wind is an onshore wind from the north to northwest or northeast. During this period winds stronger than 12 knots (causing waves of more than 4 feet) occur 30% to 45% of the afternoons and 20% to 30% of the early mornings and late evenings. Winds of gale strength which would cause waves of more than 12 to 15 feet occur 3 to 4 days each month throughout the period and 4 to 5 days in October. The swell averages 4 to 5 feet from the north during the summer months and is slightly higher in May and October.

2. West Coastal Sector.—During the summer months, from May to September, the prevailing winds over the Baltic are west to southwesterly and comparatively light, producing waves of less than 3 feet more than 50% of the period. Winds seldom (less than once a month) reach gale force during this season. There are frequent winds of gale intensity over the open sea during the winter. Until the area becomes icebound in December, coasts not protected to the south and southwest experience comparatively heavy seas.

3. South Coastal Sector.—In December, January, and February the northern coasts of the Azov and Caspian Seas are ice-locked. During the period from April to November, inclusive, winds of less than 12 m.p.h. are common more than 60% of the time with the strongest winds of the day occurring at noon and in the early afternoon. The seas are usually light (less than 3 feet); stronger seas (8 to 15 feet) run when the wind is blowing across a long stretch of open water into the port. Coasts exposed to the south and southeast (i.e., Odessa) experience these seas in the winter, but other coasts (i.e., Sevastopol') are

subject to waves of 10 to 15 feet from the strong west or northwest winds accompanying summer storms.

(b) Land and sea breezes

1. NORTH COASTAL SECTOR.—In winter there is little diurnal variation of the winds on the north coast. On and near the coast the prevailing summer winds are onshore from the north and show through diurnal variation in velocity, a land-and-sea breeze effect. The onshore winds in the afternoons from 1300 to 1700 are consistently 2 to 4 knots stronger than in the morning. The average occurrence of winds stronger than 12 knots increases from 20% to 30% of the morning and evening hours to 45% to 50% of the time in the afternoon. This increase in velocity is effective only 8 to 10 miles inland.

2. WEST COASTAL SECTOR.—Along the southeastern Baltic coast, the sea breeze occurs on about 20% of the days from June to August and is generally restricted to the months from April to September. The times of onset and duration of these winds are irregular and dependent upon local conditions. The sea breeze has its origin about 5 miles offshore and extends 12 to 20 miles inland. The maximum sea breeze effect is reached between 1400 and 1600 daily. The land breeze is much weaker and extends as far as 6 miles out to sea only under the most favorable circumstances.

3. SOUTH COASTAL SECTOR.—On the shores of the Caspian Sea, land and sea breezes are generally well-developed during the summer months. These onshore and offshore winds cause considerable variation in the prevailing light westerlies and are also partially responsible for the frequent periods of calm or near calm in the early mornings and midafternoons at shore stations in the area.

(c) Snow and freezing rain and sea spray.—Frequent or continued rain, ice and sleet storms, and freezing sea spray from subzero temperatures accompanied by high winds and seas cause considerable inconvenience and even a definite hazard to amphibious operations. Under these conditions the landing craft become coated with a heavy load of ice which impedes progress and causes accidents. Temperature data for ports on the three coastal sectors are given in TABLES V-15 to V-22. TABLE V-20 indicates the days with a maximum temperature below 32°F. The mean numbers of days with blizzards and blowing snow are listed in TABLE V-41 and the percentages of days with winds stronger than 13 knots are given in TABLE V-1.

1. NORTH COASTAL SECTOR.—During late October and November, and again in May, although the Barents, Kara, and White Seas are open to navigation for small craft, conditions are extremely difficult. During each of these months 10 to 15 or more days have a maximum temperature of less than 32°F., and temperatures below freezing are reached almost daily. High winds and seas, and snow or freezing rain occur 30% of the days. More than 40% of the time when the seas are free enough of shore ice to permit landings, hazardous icing conditions exist for landing craft. On the southern shores of the Barents Sea the temperature remains above freezing only in July and August; at the southern ports of the White Sea throughout June, July, and August. From June through September the total number of days when the temperature drops to freezing for even a short period varies from 5 to 10 days, and icing conditions would be no problem for amphibious operations.

2. WEST COASTAL SECTOR.—During the months of April to December, when the Baltic Sea and Gulf of Finland can be expected to be clear of ice for amphibious operations, the number of days in which snow, and freezing rain and sea spray might be encountered is relatively few. Snow may be expected 7 days in April, 2 days in May, 5 days in October, and 12 days in November. The occurrence of snow from June through September is negligible. Freezing rain and spray which will produce hazardous icing conditions on landing craft occur approximately 3 days in April, 2 in October, and 4 in November. From May through September the temperature rarely drops below freezing, and freezing rain and spray seldom occur during this period.

3. SOUTH COASTAL SECTOR.—On the Caspian and Black Sea coasts there are 15 to 20 days with temperatures below freezing in November, December, and March when the shores are not completely icebound. Snow or freezing rain with winds stronger than 15 knots occur 10% to 15% of the days during the period, and moderate to heavy icing on landing craft can cause considerable inconvenience to amphibious operations. From April to October no icing hazard would exist as all temperatures remain above freezing.

(5) Chemical warfare operations

Meteorological factors affecting chemical warfare operations are a) wind speed, b) turbulence, c) precipitation, and d) temperature.

(a) Wind speed.—Low wind speeds are necessary to prevent frictional turbulence in the low layers of the atmosphere and consequent rapid dispersal of chemical agents. To build up high concentrations of gas in the atmosphere, wind speeds less than 5 m.p.h. are desirable. To permit rapid horizontal dispersal of gases in the low layers of the atmosphere but restrict vertical dispersal, wind speeds between 5 and 12 m.p.h. are desirable. Frequencies of such wind conditions are summarized for 6 stations in TABLE V-3. Highest frequency of winds less than 7 m.p.h. occurs in the morning and evening at most stations. Summer shows a higher seasonal frequency than the other seasons. However, there are many exceptions to the generalizations above. For more detailed consideration, the summaries of surface winds are available (TABLE V-28).

The frequency of winds from 8 to 12 m.p.h. shows even more random variation than that of winds below 7 m.p.h. Summer and fall are the most favorable seasons, although the advantage in these seasons as compared to winter and spring is not great. The diurnal variations are random and no generalization regarding the favorability of one time of the day over another can be made.

(b) Turbulence.—Turbulence in the lower layers of the atmosphere permits vertical dispersal of gases and prevents maintenance of proper gas concentration. During the winter months, the atmosphere is usually stable. Turbulence occurs primarily in connection with high wind velocities. The atmosphere is most stable at night and least stable in the afternoon. During the summer, the atmosphere is frequently quite unstable, and this instability is augmented by solar heating during the day. Such unstable conditions are most frequent in the southern part of U.S.S.R. and least frequent along the Arctic coast.

(c) Precipitation.—Precipitation in the form of rain during a chemical attack removes some of the gas from the atmosphere by the process of solution of the gas in the water drops and, in some cases, chemical reaction between the water and the gas. Precipitation data (TABLES V-5 through V-14) show the frequency of occurrence of rain and snowfall. During the winter months, the precipitation is almost entirely in the form of snow. Snow is less effective than rain in removing gases from the atmosphere.

TABLE V - 3

PERCENTAGE FREQUENCY OF SPECIFIED SURFACE WIND SPEEDS

		JAN	APR	JUL	OCT
LESS THAN 7 MILES PER HOUR					
NORTHWESTERN COAST					
Kola	0700	43.0	51.9	39.4	45.8
	1300	46.5	41.0	33.2	38.9
	2100	49.3	62.0	50.9	53.8
BALTIC COAST					
Riga	0900	24 3	31.2	41.8	23.5
	1500	20.5	15.6	24.2	20.1
	2100	19.0	30.7	44.6	22.8
NORTHEAST INTERIOR					
Velikiy Ustyug	0700	56.8	62.0	76.3	52.9
	1300	51 4	39.0	60.7	46.8
	1900	52.2	60.2	79.5	60.5
UKRAINE					
Kiyev	0700	45.8	46.0	72.2	65.7
	1300	46.1	26.1	41.1	45.9
	1900	40 9	50.6	68.0	62.2
VOLGA BASIN					
Stalingrad	0700	27.9	36.4	48.4	53.3
	1300	22.4	21.2	35 6	36.3
	1900	31.2	43.3	52.3	60.4
BLACK SEA COAST					
Sevastopol'	0700	48.4	57.9	71.6	59.1
	1300	28.6	15.8	10.0	20.6
	1900	43.9	50.3	48.2	56.0
8 TO 12 MILES PER HOUR					
NORTHWESTERN COAST					
Kola	0700	23.2	27.4	31.0	37.5
	1300	29.3	32.0	25.2	37.2
	1900	26.8	19.7	21.9	25.9
BALTIC COAST					
Riga	0900	23.2	22.1	28.1	26.8
	1500	24.5	20.9	29.1	20.1
	2100	24.8	24.1	27.7	30.3
NORTHEAST INTERIOR					
Velikiy Ustyug	0700	22.7	26.4	17.3	33.4
	1300	22.9	30.6	34.4	24.5
	1900	29.2	29.7	16.1	25.2
UKRAINE					
Kiyev	0700	31.9	31.6	19.3	23.7
	1300	30.3	37.3	40.4	39.3
	1900	36.2	34.8	25.2	27.4
VOLGA BASIN					
Stalingrad	0700	31.3	29.0	33.8	26.2
	1300	32.4	28.0	31.6	29.8
	1900	23.7	28.3	29.3	19.4
BLACK SEA COAST					
Sevastopol'	0700	15.2	17.0	20.6	19.1
	1300	20.2	25.5	27.4	29.1
	1900	26.0	22.5	28.5	19.7

(d) Temperature.—Low temperatures may restrict the use of gases which freeze at relatively high temperatures. Temperature data (TABLES V-15 through V-22) may be compared to the freezing point of any particular gas to determine possible restrictions of its use.

B. Weather and nonmilitary activities

(1) Agriculture

European U.S.S.R. can be divided into 4 regions of roughly uniform agricultural characteristics. The northernmost region is the tundra of the Arctic coast where agriculture is greatly restricted by a short and wet growing season, permanently frozen subsoil with marshy characteristics in the surface layers during summer, flooding of river basins by thaw in the headwaters before the breakup of ice at the northern sea coast, and long, extremely severe winters. The result of these natural obstacles is that agriculture is in either an experimental or very primitive stage.

South of the Arctic tundra is the taiga which consists of a belt of forest land. This region extends as far south as the Gulf of Finland in the west and the 58° parallel in the east. While the climate is not so unfavorable for agricultural pursuits as it is in the tundra, there is no extensive cultivation. The subsoil is not permanently frozen, flooding of river basins is not so common. Summers are less cloudy and foggy, but they are short. Winters are almost as severe as those of the tundra.

Southwest of the taiga is the Ukraine which is one of the great grain-producing regions of the world. The Ukraine is similar in climate and topography to northwestern-central United States and south-central Canada. The winters are long and cold, but the summers are warm, sunny, and rainfall is usually ample.

In the southeast of European U.S.S.R. is a semiarid region including the Volga and Caspian basins. Although soil and temperatures are suitable for agriculture, rainfall is insufficient for extensive cultivation without irrigation.

Data on length of the growing season in terms of the first and last frost are given in TABLE V-22. After the spring thaw, there is usually no further danger of killing frosts.

Data on the frequency of hail (TABLE V-43) show that there is little danger of any considerable damage from hail.

Precipitation over most of European U.S.S.R. (TABLES V-5 through V-14) is light; however, there is little evaporation to cause loss of moisture, and winter precipitation remains on the ground until spring. One obstacle to successful farming is the variability in rainfall from year to year. The summer rains occur primarily in convective showers, and their distribution and frequency are random; in addition, they depend upon unstable conditions in the atmosphere which may be greatly varied by small deviations from normal of the predominant pressure patterns. As a result, European U.S.S.R. suffers periodically from droughts. This is particularly true of the zones where rainfall is hardly sufficient to support crops in the good years.

(2) Industry

The major climatic factor influencing industrial enterprise is the extreme cold of the winters. The efficiency of labor is affected and precautions are necessary to protect and operate equipment at low temperatures.

(3) Transportation and supply

During the winter, frozen ground conditions, as well as frozen lake and river surfaces and sea areas, permit unrestricted transportation and supply by vehicles designed for operation over snow. Railways must be equipped with snow plows to remove falling and drifting snow. Ship transportation is greatly restricted during winter, because most ports are closed to navigation by ice.

In spring, flooding of river basins in the north and lesser spring floods on all rivers as well as melting snow on the land causes extremely poor conditions for land transportation.

Climatic conditions are usually favorable for transportation and supply operations during the summer and fall months.

(4) Construction

The severe winter weather presents numerous obstacles to construction. Considerable effort must be expended to prevent failure of structures because of climatic effects.

Since most winter temperatures are below freezing, freshly poured concrete must be artificially heated to keep it above the freezing point. In addition, pipes bringing in water for curing concrete must be protected. Special precautions must be taken to permit expansion and contraction of structural members as the annual temperature range is extremely high in the U.S.S.R.

Steel construction is dangerous and difficult under conditions of low temperatures and icy surfaces. As with concrete construction, large expansion joints are necessary to allow for the large annual temperature range. Earthwork and grading are difficult in winter when exposed earth surfaces freeze immediately and make frequent blasting necessary.

In structural design, the normal provision for wind loadings is necessary and allowance must also be made for large snow loadings on roofing. Water supply lines must be deeply buried to avoid freezing. In the zones where frozen subsoil and marshy surface soils are prevalent in summer, extra provision must be made for drainage.

In addition to the extra precautions which must be taken to prevent climatically caused structural failure, the decrease in labor efficiency in cold weather must be considered in wintertime construction.

In general, winter with its cold weather and spring with muddy soil conditions are unfavorable for construction, but summer and fall with moderate temperatures and long days are favorable.

53. SYNOPTIC WEATHER TYPES AND FORECASTING PROBLEMS

A. Synoptic weather types

The variation in synoptic situations over eastern Europe is great, and a complete study of weather types would be as lengthy as similar studies for the United States or western Europe. In this section a few basic principles are discussed briefly. This section is not intended to be a guide for forecasters, but is presented as an orientation in the analysis of the weather in this area from a synoptic standpoint.

(1) General features of synoptic analysis

During the winter months, European U.S.S.R. is the meeting place of the migratory cyclones of western Europe and the semipermanent high pressure system centered in Asia. The synoptic situations are a result of the interaction between these systems and range from breakdown of the Asiatic *high* and eastward passage of cyclones into Asia to the intensification and displacement of the Asiatic *high* westward to cover all of Europe.

European U.S.S.R. is on the western extremity of the high pressure area which covers northern Asia in winter. To the west of European U.S.S.R., over the North Atlantic, is a semipermanent low pressure center. Both the high pressure system to the east and the low pressure system to the west are extremely strong and persistent. Winter synoptic situations show progressions of occluded fronts around the southern side of the North Atlantic *low*. Such occluded fronts normally dissipate after reaching the Asiatic *high* or are forced aloft over the cold dome of air which forms the high cell.

During the summer months, European U.S.S.R. lies on the northwestern side of an immense thermally produced *low* which covers southern and eastern Asia, and on the northeastern side of a high pressure cell which is centered over the subtropical North Atlantic and extends over the Mediterranean. Summer synoptic situations are primarily a succession of weak *highs* and *lows* with indistinct frontal systems.

Fall and spring transitional months show no marked changes from one type of synoptic situation to another. There is a gradual intensification of pressure centers in the fall and a gradual weakening in the spring.

A short synoptic series for both summer and winter conditions is shown in FIGURES V-6 and V-7. These maps have been selected to show fairly pronounced examples of the summer *low* system and the winter *high* system. They do not represent mean or extreme conditions.

FIGURE V-8 shows opposite extremes in the synoptic situations which can be expected during the summer. In the upper chart a deep center of the Asiatic low pressure system is located over northeastern European U.S.S.R. This *low* combined with the *low* in the North Atlantic causes a low pressure field in northern U.S.S.R. The *high* cell of the North Atlantic is relatively weak and split by an occluded front. In the lower chart, the circulation over European U.S.S.R. is controlled by a strong ridge extending from the North Atlantic high pressure cell. The *low* of the North Atlantic is displaced toward the pole and the Asiatic *low* is off the map entirely.

FIGURE V-9 shows opposite extremes in winter situations. The upper chart shows a strong cell of the Asiatic high pressure system over western U.S.S.R. and the North Atlantic. This cell blocks the intrusion of cyclonic systems from the west. The lower chart shows the Asiatic *high* system displaced to the east, permitting an intense cyclonic system to penetrate eastward into Asiatic U.S.S.R.

(2) Movement of cyclones

Cyclones affecting eastern Europe originate in most cases over the Atlantic or Mediterranean where there is ample moisture supply and temperature contrast to permit cyclogenesis. While moving eastward over Europe, occlusion of the frontal system and filling of the cyclones with consequent weakening of the storm intensity is the common occurrence. Typical fall, winter, and spring cyclone tracks and the mean 3-kilometer pressure pattern with which they occur most frequently are shown in FIGURES V-10 to V-14.

FIGURE V-10 shows the cyclone tracks which occur frequently with strong, almost due westerly winds at 3 kilometers. This is a high-index situation, i.e., a large decrease in mean pressure from the 35° parallel to the 55° parallel. Rapid eastward movement of cyclones results, with accompanying rapid changes in weather conditions. This type of situation is easiest to forecast since the movement of the storms is uniform in speed and direction.

FIGURE V-11 is a low-index situation with a closed *low* in the Mediterranean and a deep trough extending to it from the Icelandic *low*. This system aloft results in northeastward movement of depressions from the Mediterranean to the Black Sea region and the movement of depressions forming in the North Atlantic over the Arctic Sea. Depressions of the former type bring little rainfall to southern U.S.S.R. since they are usually greatly weak-

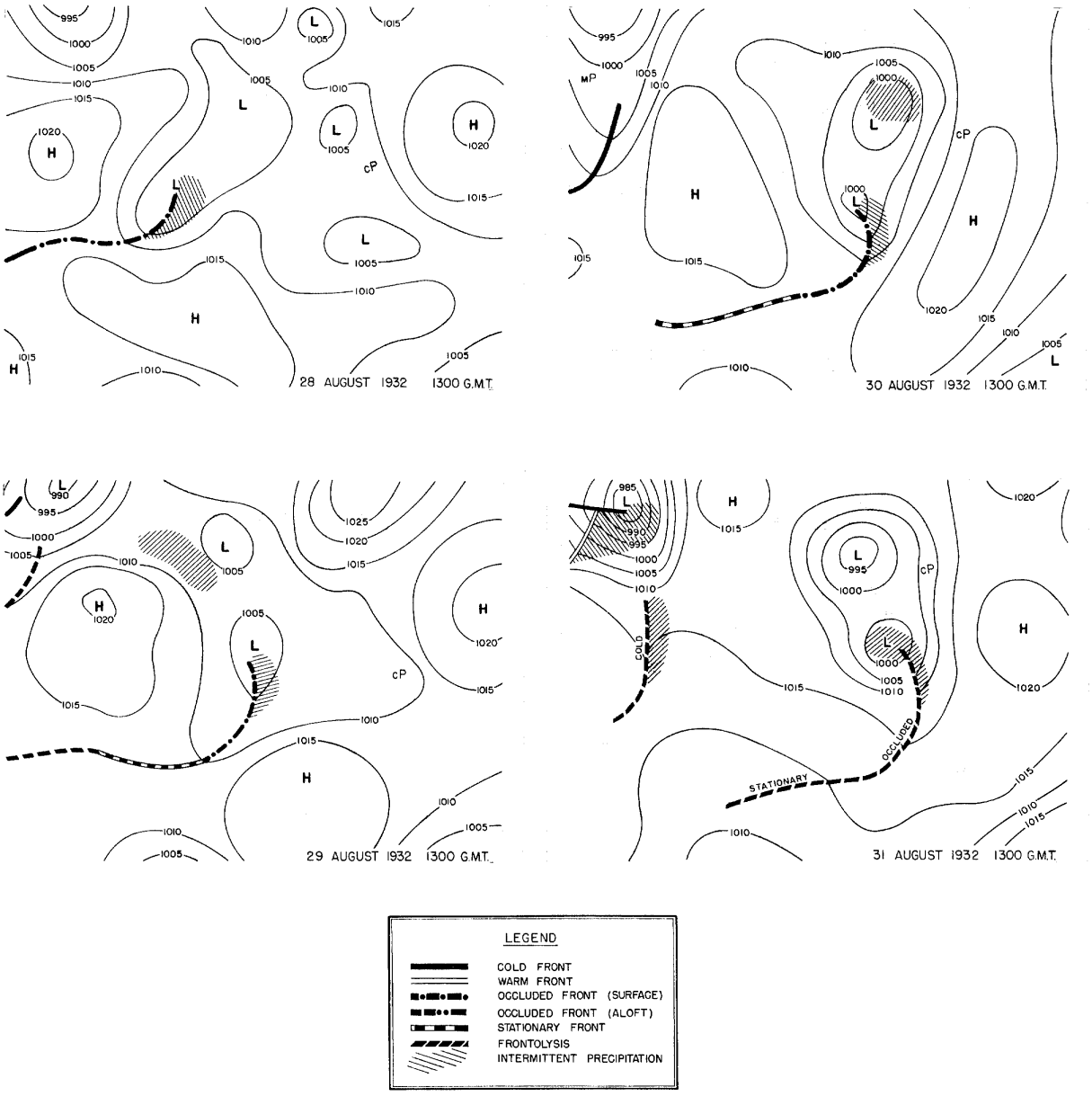


FIGURE V-6. *Typical summer synoptic situation.*

ened by their movement over the mountains of southern Europe before they reach Russia.

FIGURE V-12 is another low-index situation with a deep trough over eastern Europe and ridge over Scandinavia. This circulation aloft causes cyclones forming in the North Atlantic to move eastward or southeastward and occlude in northern U.S.S.R. Cyclones forming in the eastern Mediterranean may move northeastward into the Ukraine and Volga basin.

FIGURE V-13 shows a ridge over European U.S.S.R. and a trough over eastern Europe and ridge over Scandinavia. cyclones move northeastward and are frequently blocked from entering European U.S.S.R., except in the extreme northwest.

FIGURE V-14 shows an unusual situation which deserves mention because some of the severest winter weather of eastern Europe is associated with it. The circulation pattern here is a closed low pressure cell over the Mediterranean and a closed *high* over Scandinavia. This causes a negative index, i.e., an increase in mean pressure from south to north, and consequent easterly winds aloft and at the surface over southern Europe. The effect of such a circulation aloft is to bring cold air from central Asia over Europe and a resultant westward extension of the Asiatic winter *high* cell. This situation gives eastern Europe its worst cold winter weather, and frequently causes easterly gales in the Volga basin and the Ukraine. All Atlantic cyclones are displaced to the northwest and no maritime air moves over eastern Europe to raise temperatures until the circulation pattern is changed. This situation is rare.

The circulation patterns described above are typical of the fall, winter, and spring seasons. FIGURE V-15 shows typical cyclone tracks of the summer season. Summer

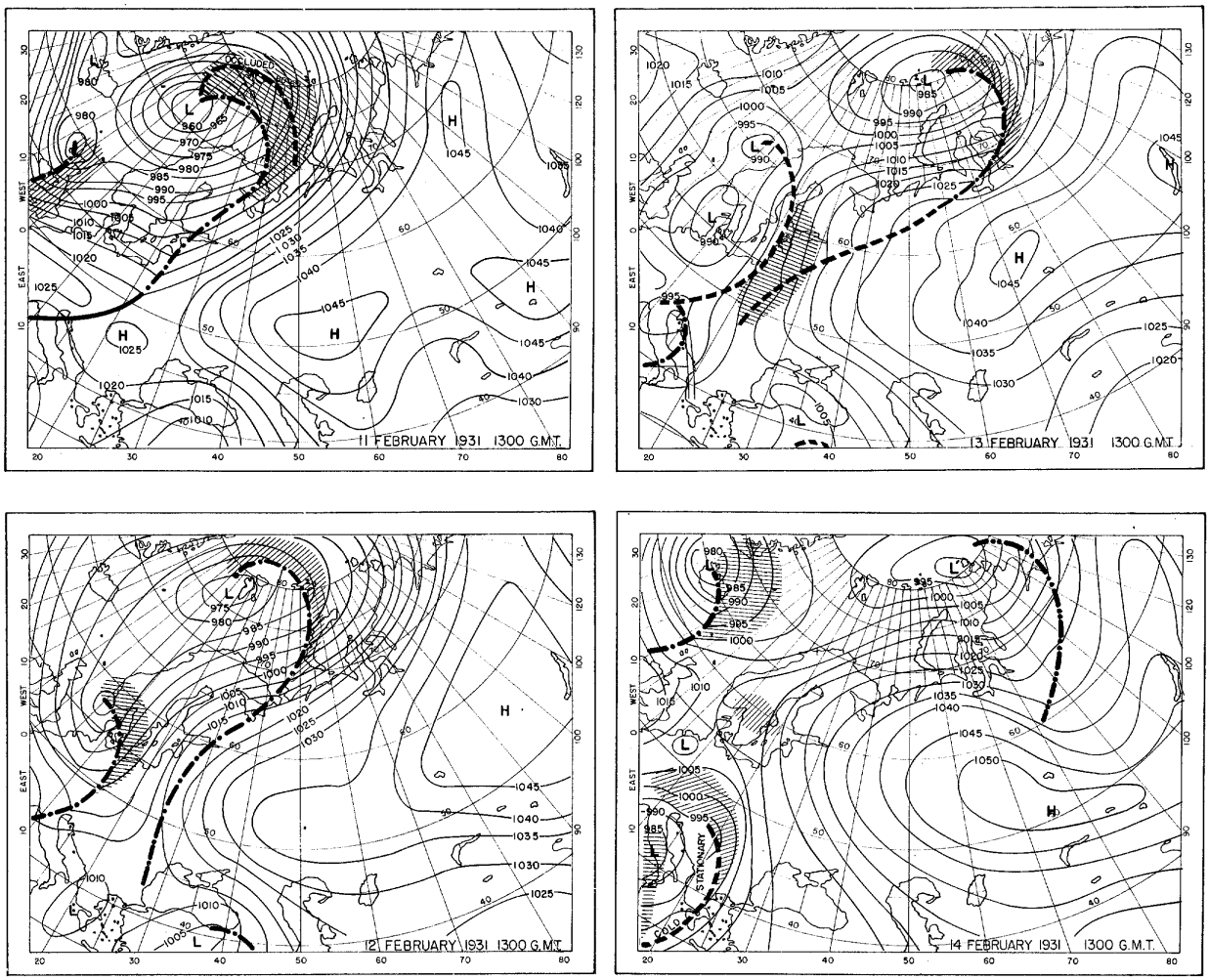


FIGURE V-7. *Typical winter synoptic situation.*

cyclones are weak, and their movement is slow and irregular. The associated frontal systems are indistinct. However, the summer air masses which converge in these weak cyclones are quite unstable and when their instability is released, extensive convective showers occur. The sluggish movement of these cyclones permits widespread convective showers to persist over a particular area for long periods.

The storm tracks shown in the figures indicate, in general, the direction of entrance of the cyclones into European U.S.S.R. During the winter, the southerly flow on the west side of the Asiatic heat *low* forces most cyclonic systems to the northeast after they pass into U.S.S.R. The associated fronts, usually occlusions, move either to the northeast or aloft over the *high* cell and are very much weakened by their long land trajectory.

(3) Movement and characteristics of anticyclones

During the winter, eastern Europe is not affected by migratory high pressure areas to any appreciable extent. The temperate North Atlantic is occupied by a stationary low pressure area, and the subtropical North Atlantic is occupied by a stationary high pressure area. Cyclones which move into northern Europe are rarely followed by a high pressure cell of any extent. As a rule, only a minor high pressure ridge succeeds a cyclone, and separates it from the next one to the west. What high pressure cells do affect eastern Europe are usually westward extensions of the Asiatic winter *high* cell, or eastward extensions of the *high* cell centered in the subtropical North Atlantic.

During the summer season, anticyclones are frequent on the synoptic charts of eastern Europe. Many of these originate as extensions of the subtropical *high* cell which

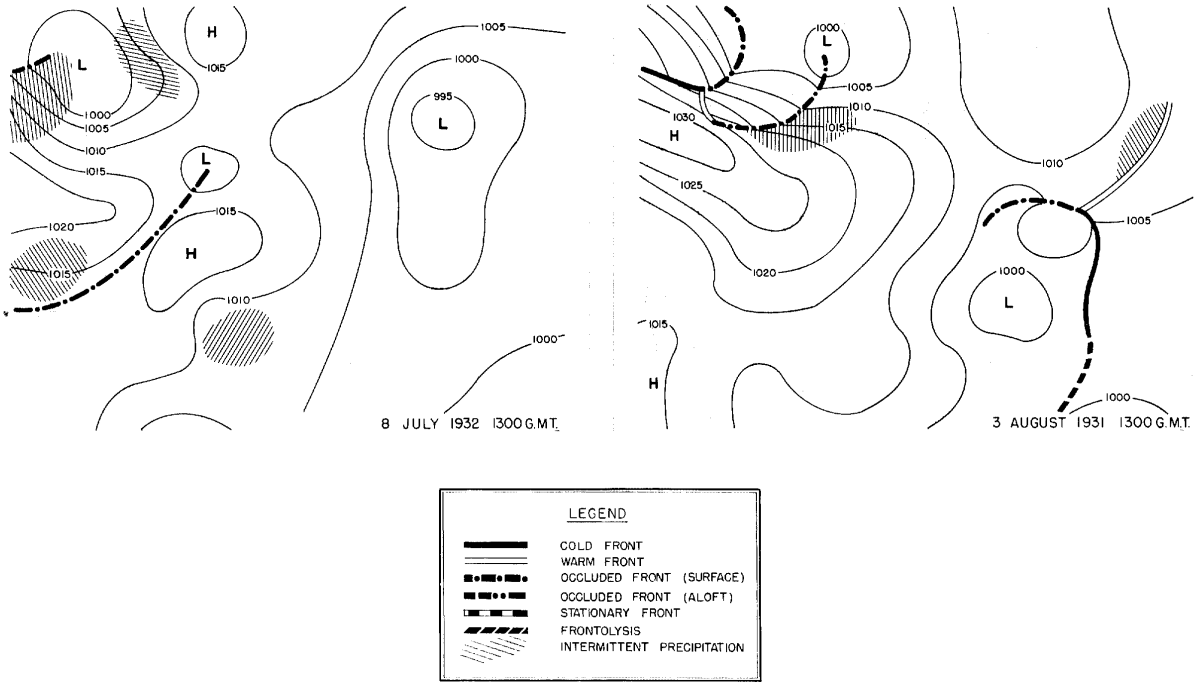


FIGURE V-8. *Extremes of summer synoptic situation.*

intensifies considerably during the summer and extends as a ridge over the Mediterranean or southern Europe. When this eastward extension is at a maximum, it is common for the *high* to split, and the eastern cell to move east or southeast. A few high pressure cells move into northwestern U.S.S.R. as a result of outbreaks of polar air from the north. However, these are most frequent over Siberia because the Icelandic *low* must be located well into the western North Atlantic to permit a strong northwesterly flow into eastern Europe. Many of the small high pressure cells on the summer synoptic maps are insignificant relative *highs* which exist temporarily in the flat pressure gradients of summer.

(4) Weather associated with frontal systems

Frontal systems reaching eastern Europe during the winter are predominantly warm occlusions. Many of them

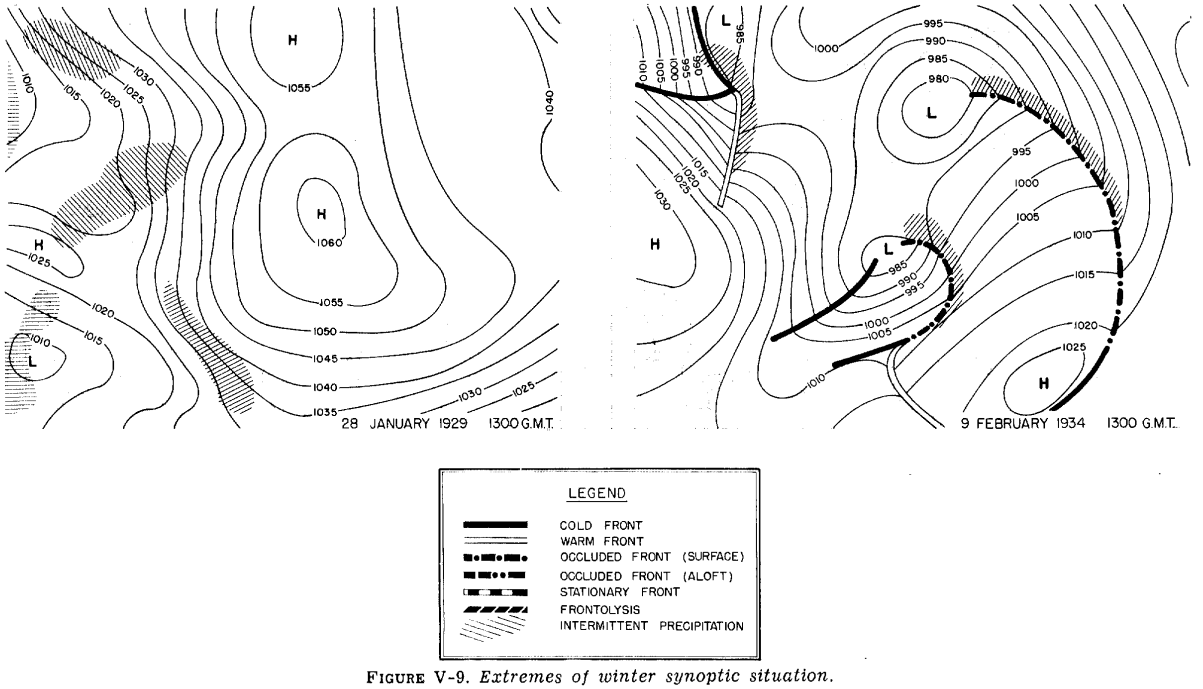


FIGURE V-9. *Extremes of winter synoptic situation.*

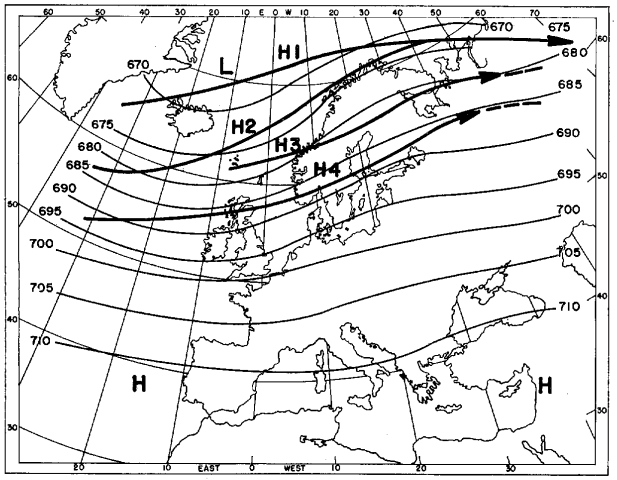


FIGURE V-10. *Characteristic mean isobars at three kilometers for a five-day period and typical storm tracks during high index (westerly steering).*

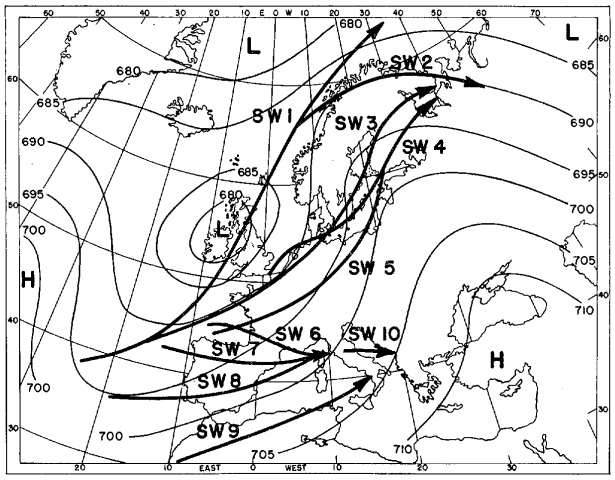


FIGURE V-13. *Characteristic mean isobars at three kilomteers for a five-day period and typical storm tracks during low index (southwest steering).*

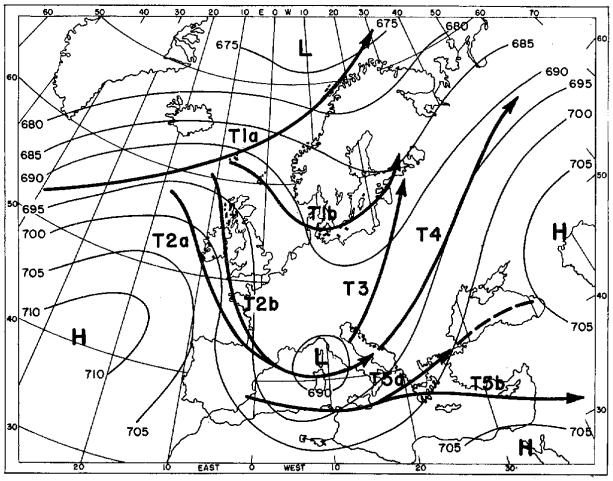


FIGURE V-11. *Characteristic mean isobars at three kilometers for a five-day period and typical storm tracks during low index (trough steering).*

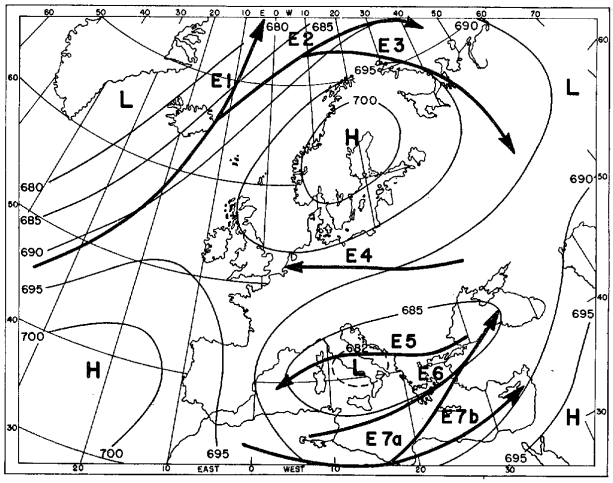


FIGURE V-14. *Characteristic mean isobars at three kilometers for a five-day period and typical storm tracks during very low (negative) index (easterly steering).*

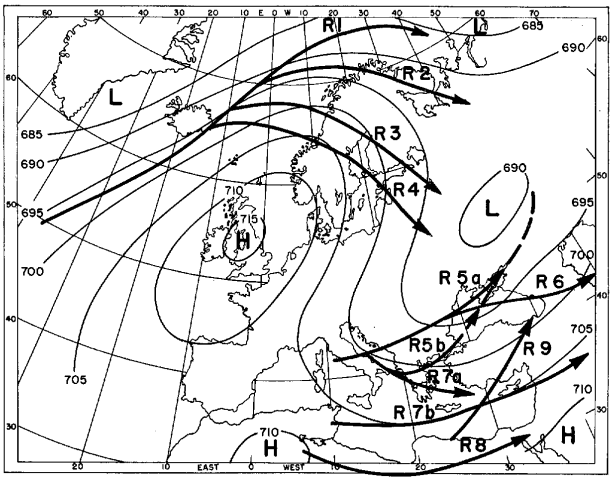


FIGURE V-12. *Characteristic mean isobars at three kilometers for a five-day period and typical storm tracks during low index (ridge steering).*

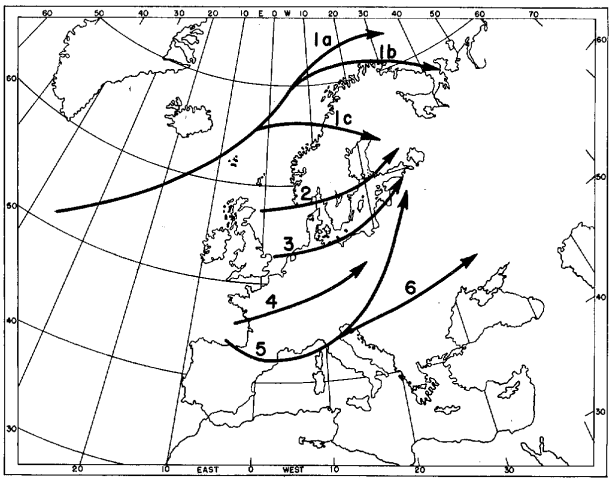


FIGURE V-15. *Principal summer storm tracks of Europe.*

are completely occluded and weakening by the time they reach U.S.S.R. As a result, the associated cloud system is confined to a narrow zone near the front, and middle and high clouds predominate. The precipitation shield accompanying the front is likewise not extensive and the amount of rain or snowfall is usually light.

In summer the fronts are indistinct. Precipitation and cloud cover occur over a larger area and the fronts are merely zones of convergence.

B. Forecasting Problems

(1) Forecasting of air-mass weather

During the winter, forecasting radiation fogs and stratus is a problem of prime importance. To interpret the effects of temperature, stability, and dew point as related to fog formation, a knowledge of local topography is essential. Small variations in terrain such as river bottoms, hills, and swamps cause large variations in the distribution and duration of radiation fogs. When temperatures are very low, ice-crystal fogs may occur, but these fogs are generally light because there is little moisture in the air when it reaches such low temperatures. During the winter months when the ground is snow-covered and temperatures are low, there is a strong tendency for water-droplet fogs to dissipate since the equilibrium vapor pressure over the snow is less than that over the water droplets. As a result, there is a net transport of water from the droplets to the snow. Persistent water-droplet fogs occur when the air has sufficient moisture content to compensate for this loss. Ice-crystal fogs do not dissipate in this way since the vapor pressure over the crystals equals that over the snow.

In summer advection fogs are frequent near cold bodies of water. Along the Barents Sea coast, air warmed by continental heating is cooled from below by the cold sea water. The resulting fogs are typical along the north coast. The same process causes fogs in the Gulf of Finland, but here the fogs are most frequent in the spring before the water is warmed.

As most of the summer rainfall occurs in convective showers, forecasting cumulus development and showers is quite important. Because moisture available for rainfall in the summer atmosphere is limited, the forecasting problem is not only a question of instability. In addition the forecaster must estimate the amount of moisture available for rainfall.

Forecasting blowing snow includes forecasting high winds and conditions on the snow surface, because blowing snow results from high winds over dry, powdery snow. The meteorological elements which produce most favorable snow surfaces for blowing snow are not well known. Theoretically, the lower the temperature, the drier the snow. However, the worst cases of blowing snow are not always associated with the lowest temperatures.

(2) Forecasting from local indications

Since there is an extensive network of stations in western Europe, it is not necessary to place much emphasis on local indications in forecasting the movement of systems into U.S.S.R. However, the terrain is such that middle and high cloud structure is usually connected with large-scale phenomena, and local observations of clouds may be used successfully to deduce conditions at a distance from the observer. During the winter, the variable which is hard to evaluate from local indications is the movement and extent of the Asiatic *high*. The intensity, position, and movement of this *high* plays an important part in directing the movement of storm centers through U.S.S.R.

TABLE V - 4

LIST OF STATIONS

STATION	LAT. N	LONG. E	ELEV.
	o '	o '	(feet)
Arkhangel'sk	64 28	40 31	20
Astrakhan'	46 21	48 02	- 82
Chernovtsy (Cernăuţi)	48 17	25 57	804
Helsinki (Helsingfors)	60 10	24 57	39
Kamenets-Podol'skiy	48 40	26 35	228
Kazan'	55 47	49 11	394
Kem'	64 57	34 39	30
Kerch'	45 21	36 29	12
Khar'kov	49 55	36 16	459
Kishinev (Chişinău)	47 02	28 48	318
Kiyev	50 27	30 30	600
Kola	68 53	33 01	23
Kursk	51 45	36 11	777
Kuybyshev	53 11	50 06	190
Leningrad	59 56	30 16	19
Lubny	50 01	33 02	512
Mezen'	65 50	44 16	66
Minsk	53 54	27 33	692
Moskva	55 47	37 38	528
Mys Svyatoy Nos	68 10	39 45	..
Nikolayev	46 58	31 58	64
Odessa	46 26	30 46	20
Onega	63 54	38 07	26
Ostrov Kolguyev	68 46	48 18	22
Ostrov Vaygach	70 24	58 48	36
Penza	53 11	45 01	438
Petrozavodsk	61 47	34 23	134
Pinsk (Poland)	52 05	26 06	466
Riga (Latvia)	56 57	24 06	41
Rostov-na-Donu	47 13	39 43	157
Saratov	51 34	46 02	217
Sevastopol'	44 37	33 32	76
Smolensk	54 47	32 04	791
Solovetskiye Ostrova	65 01	35 45	56
Sortavala (Serdobol')	61 42	30 41	62
Stalingrad	48 42	44 31	138
Taganrog	47 12	38 57	115
Tallinn	59 26	24 48	146
Tambov	52 44	41 28	433
Teriberka	69 08	35 28	138
Ufa	54 43	55 56	630
Uman'	48 44	30 12	709
Ural'sk	51 12	51 22	108
Uryupinsk	50 48	42 00	288
Velikiy Ustyug	60 47	46 22	200
Velikiye Luki	56 21	30 31	371
Vil'nyus (Wilno)	54 41	25 15	486
Vyshniy Volochëk	57 35	34 34	525
Vologda	59 14	39 53	400
Voronezh	51 40	39 13	400
Vyborg	60 43	28 44	27
Warszawa (Warsaw)	52 12	21 00	361

(3) Long-range forecasting problems

As is the case with other great agricultural nations, considerable effort has been expended by Russian meteorologists to develop accurate long-range crop forecasting methods. Also, flood forecasting and the synoptic situations causing floods have been investigated. Available literature indicates that no methods thus far developed have proven highly successful.

54. CLIMATIC STATISTICS

Topic 54 consists of tables which present climatic information not included in previous topics. Some data were recorded as early as the latter part of the nineteenth century and some as late as the middle 1930's. The records for the stations are not concurrent. The times used are Local Standard Time as far as is known. In the case of some of the data, sources are vague as to what time system had been used. The 0700 observations can be considered morning conditions, but further assumptions as to

the exact time are not warranted. In the same way the 1300 or 1400 and 1900 or 2100 observations are intended to represent noon and evening conditions, respectively. Mean conditions have been included where available. Tables of such data indicate general trends of conditions, and large deviations from the mean conditions must be expected. Where available, extreme conditions are also included.

A. Precipitation

Data on precipitation are given in TABLES V-5 through V-14.

TABLE V - 5

MEAN MONTHLY AND ANNUAL PRECIPITATION IN INCHES

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	0.89	0.78	0.90	0.78	1.43	2.01	2.37	2.53	2.24	1.78	1.27	1.05	18.03	45
Astrakhan'	0.50	0.31	0.37	0.54	0.63	0.87	0.51	0.51	0.61	0.45	0.61	0.60	6.51	16
Helsinki	1.77	1.46	1.38	1.42	1.77	1.81	2.24	2.91	2.52	2.60	2.48	2.01	24.37	71
Kazan'	0.97	0.87	0.75	0.98	1.22	2.52	2.32	1.85	1.65	1.61	1.30	1.02	17.00	24
Kem'	0.79	0.63	0.67	0.87	1.18	2.01	2.64	2.87	2.68	1.93	1.18	0.91	18.36	25
Kerch'	0.87	0.91	1.06	1.06	2.05	1.61	1.61	1.61	1.30	0.98	1.30	0.91	14.80	45
Khar'kov	1.28	1.20	1.17	1.58	1.80	2.69	2.22	1.91	1.24	1.94	1.37	1.35	19.75	18
Kiyev	1.46	1.32	1.76	1.77	2.04	3.14	3.04	1.90	1.99	2.19	1.41	1.39	23.41	18
Kola	0.50	0.84	0.49	0.62	1.25	1.24	2.27	1.94	1.73	1.26	1.31	0.90	14.35	18
Kuybyshev	0.52	0.56	0.43	0.93	1.05	1.07	1.37	0.63	1.22	1.05	0.89	0.85	10.57	12
Leningrad	1.09	1.00	0.99	1.28	1.83	2.28	2.34	3.32	2.42	1.88	1.56	1.25	21.24	50
Mezen'	0.51	0.35	0.35	0.55	0.98	1.65	1.85	2.01	1.93	1.34	0.79	0.55	15.41	20
Minsk	1.49	1.56	1.34	1.68	2.05	3.25	3.48	3.12	1.62	1.58	1.46	1.69	24.32	18
Moskva	1.57	1.44	1.43	1.44	1.91	2.48	3.12	2.76	2.36	2.52	1.78	1.65	24.46	18
Nikolayev	0.83	0.75	0.98	0.98	1.50	2.28	1.81	1.22	1.06	1.26	1.06	1.06	14.80	62
Odessa	1.00	1.00	0.95	0.94	1.05	1.98	1.59	0.96	0.82	1.12	0.85	1.11	13.37	18
Onega	1.06	0.94	0.79	0.87	1.42	2.13	2.40	2.76	2.40	1.97	1.61	1.18	19.53	25
Ostrov Kolguyev	0.31	0.25	0.30	0.34	0.50	0.72	0.98	1.77	2.01	1.46	0.94	0.44	10.02	..
Ostrov Vaygach	0.32	0.22	0.18	0.22	0.33	0.90	1.13	1.32	1.26	0.84	0.47	0.36	7.55	..
Pinsk	1.01	1.03	1.17	1.76	2.33	3.20	3.74	2.56	1.83	2.02	1.41	1.48	23.54	23
Riga	1.38	1.34	1.22	1.46	1.54	2.48	3.58	3.42	2.05	2.05	1.97	1.69	24.18	25
Rostov-na-Donu	1.38	1.42	1.30	1.34	1.69	2.44	2.20	1.22	1.22	1.30	1.50	1.54	18.55	26
Saratov	0.98	0.92	0.75	1.06	1.19	1.56	1.52	1.35	1.17	1.53	1.41	1.48	14.92	33
Sevastopol'	1.01	1.13	1.12	0.97	0.60	0.89	0.77	0.62	1.13	1.31	1.14	1.23	11.92	18
Smolensk	1.56	0.94	1.66	1.60	1.53	3.03	2.55	2.72	2.33	2.54	1.89	1.65	24.00	6
Solovetskiye Ostrova	0.7	0.7	0.8	1.0	1.5	1.7	2.3	2.3	1.8	1.1	0.8	0.7	15.4	25
Sortavala	1.79	1.54	1.38	1.30	1.68	2.07	2.40	2.72	2.80	2.63	2.37	2.06	24.74	44
Stalingrad	0.73	0.98	0.56	0.58	1.09	2.00	0.79	0.84	0.60	0.96	1.21	1.43	11.77	12
Taganrog	1.14	1.06	1.06	1.22	1.41	2.44	2.20	1.06	1.22	1.14	1.22	1.38	16.58	35
Tallinn	1.3	1.1	1.1	1.4	2.2	1.9	2.3	3.6	2.4	2.7	2.3	1.5	23.8	15
Tambov	1.24	1.46	1.06	1.24	1.76	2.05	2.03	1.60	1.82	1.76	1.56	1.48	19.06	17
Ufa	1.61	1.34	1.14	0.98	1.73	2.36	2.60	2.13	1.65	2.28	2.36	2.36	22.54	25
Uman'	1.02	1.10	1.23	1.25	2.14	3.04	2.58	1.50	1.35	1.63	0.96	1.05	18.85	18
Velikiye Luki	1.08	1.09	0.95	1.12	2.02	2.99	3.57	3.61	1.76	1.72	1.27	1.29	22.47	18
Vil'nyus	1.25	1.04	1.02	1.44	2.11	2.90	3.14	3.78	1.99	1.79	1.47	1.38	23.31	23
Vologda	1.26	1.06	1.18	1.34	2.20	2.68	2.91	3.03	2.56	1.85	1.42	1.30	22.79	26
Voronezh	1.34	1.06	1.22	1.42	1.81	2.32	2.24	1.97	1.14	1.46	1.50	1.34	18.82	34
Vyborg	1.5	1.3	1.3	1.5	1.7	2.3	2.8	3.7	3.1	2.8	2.3	1.9	26.2	50

TABLE V - 6

GREATEST MONTHLY AND ANNUAL TOTAL PRECIPITATION IN INCHES

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	2.2	1.8	1.8	1.9	3.5	4.7	4.9	5.1	4.2	4.0	3.0	2.1	29.8	45
Helsinki	4.6	3.6	4.5	3.9	4.2	4.6	7.6	6.5	5.9	5.8	5.9	4.8	33.9	87
Kazan'	1.4	1.7	2.1	3.1	3.5	4.7	5.7	3.6	3.2	4.1	2.5	3.2	24.7	18
Kem'	1.8	1.1	2.7	1.9	3.0	3.5	4.7	5.1	5.2	3.0	2.5	3.6	24.1	18
Kiyev	3.5	3.3	3.5	4.3	4.2	5.2	7.7	2.9	4.1	5.5	4.6	2.7	33.5	18
Kola	1.3	2.4	1.1	2.1	2.4	3.1	4.5	4.4	3.5	1.9	2.4	2.5	20.3	18
Kuybyshev	1.3	1.8	0.9	2.3	2.6	2.1	2.6	1.4	2.6	2.7	2.5	1.6	15.4	12
Leningrad	2.6	2.3	2.4	3.3	4.5	5.8	5.4	7.3	7.0	3.2	4.0	2.6	27.2	50
Mezen'	1.0	0.5	0.6	1.3	1.9	4.4	3.8	4.7	2.8	2.4	1.2	0.8	15.4	20
Minsk	2.5	2.8	2.6	2.9	4.0	7.4	7.2	6.2	4.0	3.3	2.9	2.7	29.9	18
Moskva	3.4	2.6	3.4	4.2	4.0	7.5	6.5	5.4	8.0	5.7	4.1	3.4	29.6	46
Odessa	4.0	3.7	2.5	4.0	4.8	6.6	4.7	6.0	5.7	4.2	3.6	3.7	24.9	35
Pinsk	2.1	2.0	2.8	3.3	4.7	5.3	5.4	6.0	4.8	6.2	3.3	3.1	28.7	23
Rostov-na-Donu	3.0	3.6	3.2	3.4	3.5	6.2	4.7	3.9	3.7	3.3	3.4	4.9	26.3	26
Saratov	1.8	1.9	1.6	1.8	3.0	3.4	2.6	2.7	2.7	3.3	3.9	3.4	20.9	18
Sevastopol'	2.3	2.4	2.6	2.7	3.9	2.7	2.0	3.4	4.3	3.6	3.6	2.3	18.3	24
Sortavala	2.8	3.6	3.6	3.1	3.3	4.3	5.4	5.1	6.6	5.3	6.1	4.3	33.8	36
Stalingrad	1.8	2.5	1.0	1.5	2.1	5.4	1.9	2.5	1.6	2.5	3.0	3.6	13.3	12
Tambov	4.2	2.8	3.2	2.9	4.4	4.3	4.6	6.2	4.0	3.6	3.6	3.2	25.6	26
Uman'	2.6	2.9	3.1	2.3	7.3	6.2	6.5	2.9	5.0	3.8	3.0	1.8	24.9	18
Vil'nyus	2.9	2.2	2.2	2.7	6.4	5.6	5.6	8.1	4.0	3.4	3.2	3.6	28.6	23
Vologda	2.5	1.8	2.4	3.0	5.7	5.5	6.1	5.9	5.6	4.7	2.8	2.6	30.8	26
Warszawa	3.0	2.1	3.2	3.9	4.6	5.3	6.8	6.1	3.5	5.4	3.4	3.2	30.8	46

TABLE V - 7

LEAST MONTHLY AND ANNUAL TOTAL PRECIPITATION IN INCHES

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	0.2	0.0	0.3	0.1	0.2	0.2	0.1	0.2	0.5	0.4	0.1	0.2	9.5	45
Helsinki	0.4	0.1	0.3	0.1	0.0	0.1	0.1	0.4	0.3	0.3	0.4	0.4	14.3	87
Kazan'	0.3	0.2	0.1	0.0	0.1	0.6	0.7	0.6	0.4	0.6	0.3	0.3	11.9	18
Kem'	0.3	0.3	0.2	0.3	0.2	0.1	1.2	1.4	0.7	0.4	0.3	0.4	12.9	18
Kiyev	0.1	0.4	0.3	0.7	0.8	1.2	0.6	0.5	0.1	0.1	0.2	0.4	16.7	18
Kola	0.1	0.2	0.0	0.1	0.2	0.1	0.1	0.5	0.5	0.3	0.2	0.2	4.7	18
Kuybyshev	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.3	0.1	0.2	0.2	6.7	12
Leningrad	0.2	0.1	0.0	0.3	0.4	0.3	0.2	1.2	0.4	0.3	0.6	0.3	15.6	50
Mezen'	0.1	0.1	0.0	0.1	0.1	0.2	0.5	0.8	0.7	0.5	0.1	0.1	9.3	20
Minsk	0.3	0.5	0.6	0.4	0.8	1.5	1.4	0.9	0.5	0.1	0.2	0.3	19.1	18
Moskva	0.2	0.1	0.2	0.2	0.4	0.8	0.7	0.6	0.2	0.4	0.6	0.2	14.2	46
Odessa	0.1	0.1	0.2	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	9.0	35
Pinsk	0.2	0.0	0.4	0.3	1.1	0.6	1.3	0.3	0.2	0.3	0.2	0.3	17.6	23
Rostov-na-Donu	0.2	0.1	0.0	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.2	11.0	26
Saratov	0.1	0.2	0.1	0.1	0.2	0.2	0.0	0.2	0.2	0.0	0.3	0.3	9.9	18
Sevastopol'	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.2	24
Sortavala	0.4	0.4	0.0	0.2	0.2	0.5	0.1	1.0	0.4	0.5	0.6	0.3	16.8	36
Stalingrad	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.1	7.7	12
Tambov	0.4	0.5	0.3	0.2	0.3	0.6	0.5	0.1	0.1	0.0	0.4	0.5	12.3	26
Uman'	0.1	0.1	0.4	0.5	0.2	1.2	0.3	0.3	0.1	0.1	0.1	0.4	13.4	18
Vil'nyus	0.2	0.2	0.1	0.3	0.5	1.0	0.6	0.9	0.6	0.1	0.3	0.3	17.1	23
Vologda	0.5	0.4	0.4	0.3	0.8	0.9	1.3	0.9	0.8	0.5	0.6	0.6	17.7	26
Warszawa	0.3	0.0	0.2	0.3	0.5	0.3	0.1	0.6	0.4	0.2	0.1	0.2	15.8	46

TABLE V - 8

MEAN NUMBER OF DAYS WITH PRECIPITATION GREATER THAN A TRACE*

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	16	15	13	11	12	12	12	14	15	17	17	17	171	25
Astrakhan'	4.9	3.6	3.6	3.3	4.5	3.8	4.0	2.9	3.2	3.0	3.2	5.1	45.1	36
Helsinki	19	16	14	13	12	13	12	16	15	17	18	19	184	36
Kazan'	17	15	12	8	11	12	12	12	15	15	18	18	165	18
Kem'	14.3	13.1	11.1	11.7	12.6	11.6	15.7	15.9	15.9	15.6	16.1	16.8	170.4	18
Kerch'	9	7	8	8	6	7	6	5	5	6	8	9	84	45
Khar'kov	16	14	13	11	11	12	11	9	9	10	14	17	147	18
Kishinev	7.8	7.8	7.3	8.8	10.0	11.2	8.3	6.5	5.6	6.6	8.2	8.9	97.0	37
Kiyev	17	14	15	12	13	14	14	10	11	13	15	18	166	18
Kola	10.8	12.0	10.3	10.9	14.2	13.0	15.4	15.6	17.4	15.2	16.1	13.3	164.2	18
Kuybyshev	10.6	8.8	8.3	7.3	7.5	8.5	8.5	5.1	10.4	9.1	12.6	13.7	110.4	12
Leningrad	21.7	19.0	13.5	12.3	14.5	13.2	16.2	18.8	16.3	16.4	19.0	22.2	203.1	18
Mezen'	8.1	6.7	5.4	7.2	10.2	9.4	11.4	12.5	13.6	11.0	10.0	6.6	112.1	17
Minsk	17	16	15	14	13	15	16	15	12	12	16	17	178	18
Moskva	19	16	14	12	12	14	14	15	16	15	17	20	184	18
Nikolayev	8	7	8	7	8	9	8	5	5	6	7	8	86	62
Odessa	10	10	10	8	8	9	7	4	4	6	8	10	94	18
Onega	18.9	18.9	16.3	13.5	11.8	12.4	11.8	14.8	16.6	17.8	17.8	20.2	190.8	21
Ostrov Kolguyev	23	25	21	19	18	18	14	11	16	22	22	22	231	..
Ostrov Vaygach	14	11	11	11	10	10	11	13	15	18	15	15	154	..
Pinsk	12.4	11.4	13.4	9.1	12.6	12.3	14.1	13.6	12.2	14.9	14.5	16.6	157.1	8
Rostov-na-Donu	12.5	11.1	10.7	9.2	8.3	9.7	8.2	4.8	5.4	6.6	10.4	11.1	108.0	25
Saratov	11.0	8.9	8.1	7.1	7.9	8.6	8.7	7.8	7.2	8.4	10.2	12.4	106.3	33
Sevastopol'	8.0	9.5	7.0	6.4	4.2	4.2	3.6	2.7	4.3	5.4	5.7	7.6	68.6	17
Smolensk	18	14	16	12	13	15	15	14	14	17	18	19	184	7
Solovetskiye Ostrova	13	13	11	11	11	10	11	13	16	16	15	15	155	25
Sortavala	17	16	14	12	13	14	14	16	15	17	18	19	185	36
Stalingrad	8.1	8.7	6.6	4.8	5.5	6.9	4.4	3.7	4.3	5.5	8.6	8.4	75.5	12
Taganrog	10	9	10	8	7	9	7	5	5	7	8	11	96	30
Tallinn	15	14	12	13	13	12	13	16	15	19	17	17	176	15
Tambov	15	14	11	10	10	13	11	10	13	11	16	17	151	17
Ufa	10	8	10	7	10	12	11	12	11	13	11	12	127	14
Uman'	13	12	12	11	12	13	11	9	8	10	10	13	134	18
Velikiye Luki	14	14	12	11	12	14	14	16	13	13	15	16	164	18
Vil'nyus	14	14	13	12	12	13	13	15	11	10	14	14	155	..
Vologda	17.7	16.4	14.5	11.4	13.8	14.4	14.6	16.1	16.6	15.8	18.0	17.9	187.2	25
Voronezh	12.5	9.7	10.1	9.6	11.0	11.2	10.2	8.8	7.5	6.8	10.8	11.4	119.6	21
Vyborg	18	16	14	12	13	13	14	17	18	19	18	18	190	50
Warszawa	15	15	14	14	13	13	15	13	11	12	14	15	164	..

* Trace not defined

TABLE V - 9

MEAN NUMBER OF DAYS WITH SPECIFIED PRECIPITATION AMOUNTS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NO OF OBS
						0.01 TO 0.24 INCH							
Astrakhan'	5.8	6.7	5.1	3.7	2.9	4.6	4.2	2.6	3.7	4.2	7.9	8.5	3,628
Kazan'	16.1	12.5	12.6	7.8	9.0	11.3	7.9	11.4	11.1	13.9	14.4	17.4	2,922
Kem'	16.5	15.4	12.0	13.0	13.0	9.0	11.9	13.5	12.4	13.9	18.3	18.0	3,652
Khar'kov	13.8	13.7	12.1	9.6	9.6	7.4	8.0	6.2	7.5	7.8	9.3	14.3	3,651
Kola	13.0	12.6	14.1	14.3	16.9	15.9	15.4	16.6	17.6	14.9	17.5	15.6	3,651
Kursk	17.4	13.7	11.8	10.8	10.5	9.1	10.0	8.8	10.3	12.4	15.2	17.9	3,651
Lubny	17.4	14.3	14.0	9.8	10.4	10.6	9.5	6.7	7.9	11.0	12.9	17.6	3,650
Mezen'	7.4	5.8	5.7	6.1	9.4	7.0	8.1	9.6	12.9	11.9	10.0	6.0	3,647
Moskva	14.3	11.1	13.5	9.5	9.5	10.6	9.2	11.7	11.6	12.2	15.1	17.1	3,287
Odessa	7.6	6.4	7.0	7.0	5.2	6.4	4.0	2.8	3.6	4.4	10.0	10.6	1,826
Penza	14.5	12.5	13.0	8.1	10.3	10.7	8.9	7.5	13.5	10.9	16.7	16.7	3,648
Petrozavodsk	17.3	15.3	14.7	11.7	14.7	9.6	11.9	15.1	14.9	16.8	17.0	17.3	3,650
Rostov-na-Donu	11.5	11.0	12.1	7.6	6.1	7.3	5.1	3.7	3.9	4.5	8.5	10.9	3,649
Saratov	11.3	8.0	7.7	6.7	6.9	5.4	6.5	5.4	6.0	7.3	9.5	9.8	3,649
Smolensk	17.8	15.4	16.2	12.1	11.9	10.7	9.5	10.9	13.6	13.1	17.3	17.9	3,651
Teriberka	15.0	16.6	13.0	14.7	15.2	13.3	15.8	16.0	18.7	20.7	17.5	15.8	2,188
Ufa	19.6	16.0	12.7	10.2	10.1	10.4	10.6	11.0	13.5	12.7	19.1	19.4	3,652
Uman'	11.4	12.5	11.3	8.9	10.1	9.1	7.9	6.5	7.0	7.5	8.4	12.4	3,650
Ural'sk	17.3	11.9	8.6	6.4	5.7	7.5	6.4	6.4	7.9	8.2	13.3	16.3	3,648
Vyshniy Volochëk	19.7	17.9	13.8	12.2	10.7	11.6	12.3	12.2	14.0	14.6	17.7	15.7	3,650
						0.25 TO 0.49 INCH							
Astrakhan'	0.2	0.4	0.4	0.6	0.9	0.7	0.4	0.6	0.3	0.4	0.7	0.3	3,628
Kazan'	0.1	0.3	0.1	0.6	1.4	2.3	2.1	2.1	0.8	1.8	0.5	0.3	2,922
Kem'	0.3	0.2	0.3	0.9	1.1	1.7	3.6	2.9	1.5	1.1	0.4	0.3	3,652
Khar'kov	1.1	0.7	1.1	0.9	1.8	2.6	2.1	1.8	0.8	1.9	0.6	1.1	3,651
Kola	0.3	0.9	0.1	0.4	0.7	1.5	3.3	1.4	2.0	1.1	1.0	0.9	3,651
Kursk	1.1	1.2	1.2	1.2	1.3	1.8	2.5	1.3	1.2	2.0	1.0	0.9	3,651
Lubny	1.1	1.3	2.1	0.8	1.7	2.4	1.5	1.1	1.0	2.8	0.5	1.3	3,650
Mezen'	0.0	0.0	0.0	0.3	0.6	1.6	2.0	2.0	1.1	1.0	0.0	0.0	3,647
Moskva	0.7	0.3	1.1	1.8	0.9	1.9	1.6	2.0	2.0	1.8	1.0	0.7	3,287
Odessa	1.2	0.6	1.4	0.6	0.4	2.6	1.8	1.2	1.4	1.0	1.4	1.0	1,826
Penza	0.4	0.6	0.6	1.1	1.1	2.1	2.4	1.3	1.6	1.2	0.8	0.7	3,648
Petrozavodsk	0.5	0.4	1.0	0.5	1.5	2.3	1.6	1.9	2.6	1.2	1.1	0.4	3,650
Rostov-na-Donu	1.1	1.7	1.1	1.0	1.4	1.9	1.1	0.6	0.8	1.3	1.1	1.7	3,649
Saratov	0.7	0.9	0.5	1.2	1.3	1.5	0.9	1.2	1.0	1.0	1.0	1.6	3,649
Smolensk	1.3	1.1	1.2	0.9	1.2	2.2	2.8	2.0	1.5	2.6	1.0	1.6	3,651
Teriberka	0.5	0.0	0.0	0.0	0.2	0.7	0.5	2.3	2.3	1.8	0.2	0.2	2,188
Ufa	1.3	1.6	1.1	1.1	1.0	2.9	1.9	1.6	1.6	1.7	2.6	2.2	3,652
Uman'	0.9	1.3	1.6	1.0	2.5	2.4	2.2	1.4	0.7	1.5	0.1	0.8	3,650
Ural'sk	0.6	0.4	0.7	0.4	0.6	0.8	0.7	0.9	0.6	1.5	1.4	1.0	3,648
Vologda	0.7	0.4	0.6	0.8	1.8	1.8	2.4	1.7	2.8	1.7	1.4	0.7	3,650
Vyshniy Volochëk	0.8	0.9	0.5	0.9	2.7	2.3	2.5	2.7	2.3	1.8	0.8	0.9	3,652
						0.50 TO 0.99 INCH							
Astrakhan'	0.9	0.0	0.2	0.2	0.5	0.1	0.2	0.3	0.1	0.1	0.1	0.0	3,628
Kazan'	0.0	0.0	0.1	0.2	0.0	1.1	0.7	0.5	0.4	0.6	0.0	0.0	2,922
Kem'	0.0	0.0	0.0	0.2	0.1	0.9	1.4	0.9	0.9	0.3	0.2	0.0	3,652
Khar'kov	0.2	0.2	0.4	0.6	0.7	1.2	1.0	0.6	0.5	0.5	0.4	0.1	3,651
Kola	0.0	0.2	0.0	0.2	0.2	0.4	0.8	0.7	0.7	0.0	0.2	0.1	3,651
Kursk	0.1	0.3	0.2	0.4	0.9	1.4	1.0	0.8	1.1	1.2	0.2	0.0	3,651
Lubny	0.6	0.6	0.6	0.3	0.4	1.1	0.6	1.0	1.0	0.5	0.2	0.3	3,650
Mezen'	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.7	0.6	0.3	0.0	0.0	3,647
Moskva	0.0	0.1	0.3	0.2	0.6	0.8	1.2	1.6	1.1	0.4	0.5	0.4	3,287
Odessa	0.6	0.2	0.8	0.4	0.8	1.2	0.2	0.8	0.2	1.0	0.6	0.6	1,826
Penza	0.1	0.0	0.0	0.3	0.9	0.7	0.7	0.3	0.4	0.3	0.3	0.1	3,648
Petrozavodsk	0.0	0.0	0.0	0.5	0.1	0.9	0.9	1.2	1.0	0.2	0.2	0.0	3,650
Rostov-na-Donu	0.1	0.6	0.2	0.5	0.9	1.8	1.2	0.4	0.7	0.5	0.2	0.3	3,649
Saratov	0.0	0.1	0.1	0.4	0.5	0.7	0.1	0.3	0.5	0.6	0.5	0.6	3,649
Smolensk	0.3	1.1	0.1	0.1	0.2	1.6	1.6	1.0	0.8	0.4	0.3	0.1	3,651
Teriberka	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.2	0.5	0.0	0.0	2,188
Ufa	0.1	0.2	0.2	0.2	0.2	1.3	1.1	1.0	0.4	0.8	0.5	0.6	3,652
Uman'	0.2	0.4	0.1	0.0	1.3	1.2	1.3	0.8	0.5	0.6	0.1	0.1	3,650
Ural'sk	0.0	0.1	0.5	0.4	0.5	0.8	0.4	0.2	0.1	0.1	0.3	0.1	3,648
Vologda	0.0	0.0	0.1	0.2	0.9	1.3	0.7	1.1	1.0	0.4	0.1	0.1	3,650
Vyshniy Volochëk	0.1	0.0	0.0	0.0	0.9	1.3	1.6	1.4	1.0	0.5	0.0	0.0	3,652
						1.0 INCH OR OVER							
Astrakhan'	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	3,628
Kazan	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4	0.0	0.0	0.0	0.0	2,922
Kem'	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.4	0.0	0.0	0.0	3,652
Khar'kov	0.0	0.0	0.0	0.0	0.3	0.4	0.1	0.4	0.1	0.3	0.1	0.0	3,651
Kola	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	3,651
Kursk	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.3	0.1	0.1	0.0	0.0	3,651
Lubny	0.0	0.1	0.0	0.0	0.1	0.5	0.3	0.4	0.2	0.1	0.0	0.0	3,650
Mezen'	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	3,647
Moskva	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.2	0.1	0.0	0.0	3,287
Odessa	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.0	0.0	0.0	1,826
Penza	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.0	3,648

TABLE V - 9 (Continued)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NO OF OBS
Petrozavodsk	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.4	0.3	0.0	0.0	0.0	3,650
Rostov-na-Donu	0.1	0.0	0.1	0.0	0.2	0.2	0.1	0.3	0.2	0.1	0.0	0.1	3,649
Saratov	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	3,649
Smolensk	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3,651
Teriberka	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	2,188
Ufa	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.1	0.1	3,652
Uman'	0.0	0.0	0.1	0.0	0.2	0.4	0.2	0.1	0.4	0.1	0.0	0.0	3,650
Ural'sk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,648
Vologda	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	3,650
Vyshniy Volochëk	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.3	0.0	0.0	0.0	0.0	3,652

TABLE V - 10

MAXIMUM AMOUNT OF PRECIPITATION IN 24 HOURS IN INCHES

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
Arkhangel'sk	0.4	0.3	0.5	0.4	1.7	1.1	1.4	2.5	1.2	0.9	0.7	0.4	25
Astrakhan'	0.7	0.4	0.7	1.7	0.6	1.8	1.0	0.9	1.2	0.9	0.5	0.5	15
Helsinki	0.7	0.8	1.0	1.5	1.5	1.9	1.8	1.6	2.1	2.1	1.1	1.6	36
Kazan'	0.3	0.5	0.4	0.8	1.3	1.7	4.8	1.3	1.0	1.1	0.5	1.3	18
Kem'	0.7	0.3	0.4	0.5	0.8	1.7	1.3	1.7	2.4	1.0	0.6	0.4	18
Kerch'	1.0	0.6	1.5	2.0	3.1	2.4	3.2	3.4	2.7	1.5	1.3	1.5	44
Khar'kov	1.7	0.8	0.9	1.0	1.6	2.1	2.9	2.6	1.6	1.9	1.4	1.0	18
Kishinev	1.1	1.0	1.0	1.6	2.7	3.7	3.6	2.0	2.3	1.6	3.0	1.1	37
Kiyev	0.8	0.9	1.3	0.9	1.2	2.5	4.1	1.3	2.3	1.8	1.4	1.7	18
Kola	0.4	0.8	0.3	0.6	0.8	0.8	1.1	1.1	0.7	0.8	0.6	0.7	18
Kuybyshev	0.4	0.4	0.5	0.9	0.9	1.0	0.9	1.0	0.6	0.6	0.6	0.6	12
Leningrad	0.5	0.3	0.4	0.7	0.8	1.6	2.2	1.9	1.3	1.1	0.8	0.5	18
Mezen'	0.2	0.2	0.3	0.4	0.7	1.5	1.4	1.6	0.8	0.9	0.4	0.2	20
Minsk	0.7	0.8	0.5	1.3	1.3	1.5	1.9	1.8	0.9	1.0	1.0	1.0	18
Moskva	0.7	0.7	0.8	1.0	1.3	1.4	2.6	1.7	1.4	1.7	0.9	0.7	18
Nikolayev	1.0	0.9	1.6	1.3	2.8	2.5	2.6	2.7	1.7	2.0	1.5	1.3	62
Odessa	1.2	1.0	1.4	0.9	0.9	1.6	3.0	1.3	1.9	2.2	0.8	0.6	18
Onega	0.8	0.7	0.3	0.4	1.1	1.2	0.9	2.8	0.8	1.3	0.5	0.5	21
Riga	0.5	0.4	0.5	1.2	1.0	1.5	1.9	1.8	0.9	1.0	0.7	0.4	10
Rostov-na-Donu	1.0	1.0	1.0	1.2	1.9	2.5	1.9	1.6	1.4	1.1	1.4	1.1	18
Saratov	0.4	0.7	1.0	0.6	1.7	1.3	1.4	0.9	1.1	1.3	1.0	0.7	18
Sevastopol'	0.6	1.0	1.1	0.9	0.8	1.2	1.5	1.5	1.4	1.5	1.8	0.9	17
Smolensk	0.8	0.6	0.4	0.6	1.1	1.3	2.6	1.8	1.4	1.5	1.2	0.8	10
Solovetskiye Ostrova	0.4	0.4	0.5	0.7	1.1	1.1	1.2	1.7	1.3	1.4	1.0	0.5	24
Sortavala	0.7	0.6	0.7	0.8	1.6	1.7	2.3	1.4	1.5	1.2	1.4	0.8	36
Stalingrad	0.8	0.5	0.5	0.7	1.3	3.2	0.9	2.0	1.2	0.8	0.6	0.8	12
Taganrog	1.1	1.1	0.8	1.0	1.7	2.1	5.5	1.5	1.5	1.2	1.5	1.1	35
Tallinn	1.1	1.0	0.7	0.6	1.3	1.1	1.2	2.2	1.3	0.9	1.0	0.6	15
Tambov	0.7	0.9	0.9	0.8	1.6	1.1	1.1	1.5	1.0	1.0	1.1	1.1	17
Ufa	0.7	0.7	0.7	0.7	1.1	1.5	1.3	1.7	0.7	1.4	1.1	1.4	18
Uman'	0.6	1.0	1.0	0.7	1.5	2.3	1.6	1.5	2.3	1.6	0.7	0.7	18
Velikiye Luki	0.5	0.6	0.5	0.6	1.6	1.7	1.6	1.3	1.2	1.4	0.8	0.8	18
Vologda	0.6	0.4	0.7	0.9	1.7	1.1	1.9	1.3	1.5	0.9	0.5	0.7	18
Vyborg	0.8	0.8	0.8	1.0	1.2	1.2	2.7	3.3	1.5	1.9	1.1	0.9	50

TABLE V - 11

MEAN NUMBER OF DAYS WITH PRECIPITATION REPORTED BUT 24-HOUR AMOUNT LESS THAN 0.01 INCH

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NO OF OBS
Astrakhan'	1.4	0.9	1.4	1.0	1.9	0.7	1.0	0.8	0.8	0.8	1.5	2.3	3,628
Kazan'	1.2	1.8	0.4	1.0	1.9	0.6	1.1	0.8	1.7	1.5	2.5	2.0	2,922
Kem'	1.9	2.0	1.9	1.2	1.1	0.6	0.5	0.4	0.6	1.5	1.1	1.5	3,652
Khar'kov	2.5	2.1	3.2	2.0	2.1	2.4	1.6	1.5	1.7	2.1	4.0	3.3	3,651
Kola	1.1	0.8	0.8	1.2	1.2	0.9	0.9	0.9	0.8	1.2	1.1	0.8	3,651
Kursk	4.4	4.5	6.3	3.3	4.0	4.2	3.9	3.5	3.3	3.9	6.0	4.8	3,651
Lubny	3.5	4.0	3.6	3.8	4.8	4.0	3.0	4.0	3.0	2.8	3.6	3.4	3,650
Mezen'	9.5	9.3	9.4	10.0	7.2	6.1	5.9	5.2	4.9	8.3	10.0	9.7	3,647
Moskva	2.3	4.0	2.0	3.9	2.5	2.1	3.1	1.9	2.1	3.8	5.0	3.1	3,287
Odessa	2.6	1.4	0.6	1.0	0.8	0.8	1.0	0.4	0.6	1.2	0.6	0.2	1,826
Penza	2.2	1.5	1.7	1.1	0.4	0.4	0.6	1.5	0.6	1.1	1.6	1.7	3,648
Petrozavodsk	3.1	3.4	2.6	3.9	2.6	3.8	2.8	3.9	3.3	2.5	3.4	4.5	3,650
Rostov-na-Donu	3.6	2.2	2.4	2.5	2.0	2.8	1.9	2.5	1.5	1.7	1.9	2.9	3,649
Saratov	2.4	1.1	2.5	1.6	1.6	3.4	3.3	2.6	1.9	1.4	2.2	2.8	3,649
Smolensk	1.4	1.0	1.6	1.7	1.3	1.6	0.5	0.8	0.5	0.5	0.8	1.3	3,651
Teriberka	1.8	1.8	2.5	1.7	2.3	1.2	1.2	0.7	1.2	0.7	1.3	0.8	2,188
Ufa	1.4	2.1	1.9	1.7	3.2	3.6	2.7	2.9	2.6	3.0	3.1	1.9	3,652
Uman'	3.0	2.0	2.6	3.5	2.8	2.1	1.7	1.9	1.5	1.9	3.6	2.8	3,650
Ural'sk	1.1	0.2	0.8	1.2	1.5	1.3	1.6	1.3	0.8	1.5	1.8	0.5	3,648
Vologda	2.1	1.7	3.0	2.2	2.1	1.3	2.1	1.4	1.2	2.7	3.8	2.6	3,650
Vyshniy Volochëk	0.9	1.1	1.4	1.4	1.3	1.1	0.7	1.3	1.1	1.8	1.1	0.9	3,652

TABLE V - 12

MEAN NUMBER OF DAYS WITH SNOW

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	8.5	9.0	7.7	4.5	2.6	0.6	0.0	0.0	1.3	6.5	9.8	9.7	60.2	25
Astrakhan'	5.0	3.0	2.0	1.0	0.0	3.0	0.0	0.0	0.0	0.0	1.0	4.0	16.0	46
Helsinki	17.0	16.0	13.0	7.0	2.0	0.2	0.0	0.0	0.3	4.0	10.0	15.0	84.0	36
Kazan'	14.5	11.7	9.6	4.3	0.0	0.0	0.0	0.0	0.4	1.6	12.2	14.6	72.5	47
Kem'	14.2	12.8	10.8	8.4	4.3	1.1	0.0	0.0	1.4	7.0	14.7	16.0	90.7	18
Khar'kov	14.0	11.0	9.0	3.0	0.0	0.0	0.0	0.0	0.0	1.0	7.0	13.0	58.0	18
Kishinev	5.3	5.1	3.5	5.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3	4.6	21.6	37
Kiyev	14.0	12.0	10.0	3.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	14.0	62.0	18
Kola	10.5	11.8	9.8	8.9	9.0	3.7	0.1	0.1	3.1	9.4	14.8	12.4	93.6	18
Kuybyshev	10.2	8.3	7.5	3.9	0.2	0.0	0.0	0.0	0.1	2.2	9.8	13.0	55.2	12
Leningrad	19.9	18.2	12.0	6.6	2.0	0.2	0.0	0.0	0.4	5.1	13.4	19.0	96.8	18
Mezen'	8.0	6.7	5.2	5.0	5.5	2.4	0.8	0.7	2.8	6.8	9.8	6.5	60.2	17
Minsk	15.0	13.0	12.0	5.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	12.0	68.0	17
Moskva	18.0	15.0	13.0	16.0	1.0	0.0	0.0	0.0	1.0	5.0	14.0	18.0	91.0	18
Odessa	6.0	6.0	4.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	5.0	24.0	18
Ostrov Kolguyev	24.0	20.0	19.0	17.0	16.0	6.0	0.0	0.0	1.0	12.0	17.0	22.0	154.0	..
Ostrov Vaygach	12.0	10.0	9.0	9.0	9.0	4.0	1.0	0.0	4.0	13.0	14.0	12.0	97.0	..
Pinsk	14.2	11.8	7.1	3.2	0.1	0.0	0.0	0.0	0.2	1.2	8.3	11.6	57.7	..
Rostov-na-Donu	8.2	9.9	8.7	6.7	1.3	0.0	0.0	0.0	0.0	0.1	0.1	3.8	38.8	18
Saratov	10.9	10.4	8.0	6.8	2.4	0.0	0.0	0.0	0.0	0.1	1.9	6.7	47.2	33
Sevastopol'	2.2	3.4	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	9.5	17
Smolensk	17.0	13.0	13.0	6.0	1.0	0.0	0.0	0.0	0.0	5.0	11.0	17.0	83.2	7
Sortavala	17.0	16.0	13.0	7.0	2.0	0.2	0.0	0.0	0.3	5.0	11.0	16.0	88.0	36
Stalingrad	6.6	6.5	4.5	0.7	0.0	0.0	0.0	0.0	0.1	0.5	4.0	5.3	28.2	12
Tambov	14.0	13.0	10.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	12.0	16.0	73.0	18
Ufa	10.0	8.0	9.0	4.0	0.0	0.0	0.0	0.0	1.0	6.0	10.0	17.0	59.0	14
Uman'	11.0	10.0	8.0	2.0	0.0	0.0	0.0	0.0	0.0	1.0	4.0	10.0	46.0	18
Velikiye Luki	13.0	14.0	10.0	4.0	1.0	0.0	0.0	0.0	0.0	2.0	11.0	14.0	69.0	18
Vil'nyus	11.7	9.8	7.3	3.9	0.0	0.0	0.0	0.0	0.0	1.3	9.2	8.2	51.4	..
Vologda	16.4	16.6	13.1	6.4	2.3	0.7	0.0	0.0	1.2	7.1	15.9	16.8	96.5	18
Voronezh	10.3	8.1	7.7	2.6	0.4	0.0	0.0	0.0	0.1	0.3	5.1	8.9	44.8	32
Warszawa	12.9	11.6	10.3	3.4	0.5	0.0	0.0	0.0	0.0	1.7	6.2	11.2	57.8	..

TABLE V - 13

MEAN SNOW COVER IN INCHES BY 10-DAY PERIODS

	Minsk (3 yr.)	Moskva (4 yr.)	Odessa (3 yr.)	Onega* (25 yr.)	Rostov-na-Donu (19 yr.)	Stalingrad (22 yr.)	Tambov (22 yr.)	Uman' (24 yr.)
October:								
1-10	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
11-20	0.1	0.2	0.0	0.4	0.0	0.0	0.0	0.0
21-31	0.2	0.3	0.0	1.2	0.0	0.2	0.1	0.1
November:								
1-10	0.1	0.4	0.0	2.0	0.1	0.2	0.8	0.0
11-20	0.4	1.6	0.1	3.1	0.2	0.8	1.6	0.3
21-30	1.6	2.4	0.1	5.1	0.4	0.8	2.8	0.8
December:								
1-10	2.0	2.8	0.0	7.1	0.8	1.2	4.3	1.2
11-20	3.1	4.3	0.4	8.7	0.8	2.4	6.3	1.2
21-31	3.9	5.9	2.0	11.4	2.4	4.7	8.3	2.0
January:								
1-10	5.9	7.9	0.8	14.2	2.8	5.9	10.6	3.1
11-20	7.1	9.4	1.6	16.1	3.1	7.9	13.8	3.5
21-31	8.3	11.4	1.6	17.7	3.9	8.7	15.0	3.9
February:								
1-10	9.4	14.3	0.4	18.9	3.1	8.7	15.7	3.1
11-20	10.2	16.5	0.4	20.9	3.1	8.3	17.3	3.5
21-28	10.2	17.3	1.6	22.0	3.1	8.7	18.1	4.3
March:								
1-10	9.1	18.1	0.8	22.0	2.8	7.9	18.1	3.5
11-20	7.9	18.9	0.4	23.2	2.0	5.5	16.9	2.8
21-31	5.9	16.9	0.4	22.8	0.4	2.8	13.0	1.2
April:								
1-10	2.4	13.4	0.0	17.7	0.0	0.3	5.1	0.2
11-20	0.1	7.5	0.0	10.6	0.0	0.0	1.2	0.0
21-30	0.1	1.2	0.0	3.9	0.0	0.0	0.2	0.0

* Sept. 21-30: 0.1 inch; May 1-10: 1.2 inches.

TABLE V - 14

MEAN AND EXTREME DATES OF SNOW COVER AND TIME OF MEAN DEEPEST SNOW COVER

Station	Beginning of snow cover (month and day)			End of snow cover (month and day)			Deepest snow	
	Mean	Earliest	Latest	Mean	Earliest	Latest	Mean	Month
							Inches	
Arkhangel'sk	10-21	9-30	11-18	4-27	4-11	5-25	26.8	Mar.
Helsinki	10-18	9-26	..	5-4	..	6-5	15.8	Feb.
Kazan'	10-27	9-29	11-17	4-14	4-5	4-24	23.6	Mar.
Kem'	10-19	10-1	..	5-4	..	5-26	..	..
Kishinev	11-1	9-27	..	4-2	..	4-30	..	..
Kursk	11-9	10-14	12-25	4-4	3-15	4-22	..	..
Leningrad	10-29	10-2	11-27	4-14	3-27	5-7	11.0	Feb.
Moskva	11-4	10-10	11-24	4-12	3-25	4-25	18.9	Mar.
Odessa	12-8	11-4	..	3-5	..	3-30	..	..
Onega	10-15	9-22	..	4-28	..	5-23	22.7	Mar.
Penza	10-30	10-1	12-4	4-15	4-2	4-28	18.9	Mar.
Pinsk	10-8	9-11	..	4-23	..	5-23	..	..
Rostov-na-Donu	11-2	11-2	..	3-23	..	4-27	3.1	Feb.
Smolensk	11-7	10-9	11-27	4-10	3-19	4-28	..	..
Sortavala	10-13	9-11	..	5-8	..	6-19	19.8	Feb.
Stalingrad	11-19	10-24	12-14	3-22	3-6	4-12	8.7	Jan.-Feb.
Tambov	11-8	10-15	..	4-10	..	4-29	17.0	Feb.
Uman'	11-20	10-19	..	3-21	..	4-26	3.6	Feb.
Vologda	10-23	9-24	9-12	4-20	4-6	5-13	..	..
Voronezh	11-12	10-18	12-4	3-29	3-2	4-18	..	..
Warszawa	10-18	9-20	..	4-20	..	5-15	..	..

B. Temperature

Data on temperature are given in TABLES V-15 through V-22.

TABLE V - 15

MEAN DAILY TEMPERATURE (°F.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	8.1	9.7	17.4	30.0	41.4	52.7	59.5	55.2	45.7	33.8	21.4	12.2	32.3	35
Astrakhan'	19.2	22.8	32.7	47.8	63.7	72.7	77.4	73.8	62.6	49.5	36.0	26.6	48.7	35
Helsinki	20.7	20.1	24.8	34.0	46.0	56.8	61.9	59.5	51.4	41.7	32.2	39.5	25.0	92
Kazan'	7.5	11.3	20.8	38.3	55.4	63.3	67.8	63.3	51.8	38.1	23.9	13.5	37.9	35
Kem'	12.0	12.0	18.3	30.4	40.5	50.7	57.6	54.0	45.1	34.2	23.7	15.8	32.9	35
Khar'kov	18.1	21.2	29.8	44.6	57.9	64.9	69.1	65.8	55.8	44.4	32.4	23.4	43.9	35
Kishinev	25.6	25.8	39.0	49.8	62.4	67.4	71.3	70.4	61.6	51.9	41.7	29.4	49.7	13
Kiyev	21.2	23.5	31.1	44.2	58.3	63.3	66.7	64.8	56.1	45.1	33.3	25.7	44.4	35
Kola	11.3	11.1	17.4	29.1	38.1	47.7	54.5	51.3	42.6	31.5	20.5	13.3	30.7	35
Kuybyshev	6.6	12.4	21.7	39.2	59.5	67.6	71.8	69.3	54.9	41.2	25.7	12.9	40.2	13
Leningrad	18.3	18.1	24.6	37.0	49.1	58.3	63.5	59.9	51.1	40.5	30.4	22.1	39.4	35
Mezen'	5.5	7.2	14.9	27.9	37.9	49.6	56.5	52.2	43.2	30.6	18.7	9.5	29.5	40
Minsk	19.8	21.6	28.2	40.8	54.1	60.6	63.5	60.6	52.3	41.7	31.1	23.9	41.4	29
Moskva	12.6	15.6	23.4	38.1	53.2	60.1	64.4	60.4	50.2	38.9	27.0	17.6	38.4	35
Odessa	26.4	29.1	36.5	47.1	60.3	67.8	72.7	71.2	62.2	52.3	40.3	32.2	49.8	35
Onega	9.8	11.8	19.2	33.9	44.8	55.0	61.2	56.8	47.0	35.0	23.6	13.0	34.3	22
Ostrov Kolguyev	13.1	9.1	6.3	16.0	27.5	35.8	45.3	47.8	41.4	31.5	25.2	18.0	26.4	..
Ostrov Vaygach	-1.4	0.9	0.1	10.0	21.9	34.7	41.5	42.3	38.3	20.1	18.0	6.4	19.6	..
Pinsk	22.6	25.3	32.2	44.4	57.2	62.6	65.5	63.0	55.0	44.2	33.6	26.8	44.4	35
Riga	24.3	25.2	30.4	41.2	54.0	61.2	64.8	61.3	53.1	44.6	34.7	26.2	43.4	20
Rostov-na-Donu	21.0	24.8	33.8	48.2	62.2	69.3	74.7	73.0	61.7	49.6	36.1	27.5	48.5	30
Saratov	12.6	10.2	22.6	42.6	57.9	65.7	70.0	67.1	56.3	42.1	28.6	14.9	40.9	35
Sevastopol'	35.6	36.9	42.3	49.8	59.9	68.2	73.9	73.0	64.9	56.8	46.2	40.8	54.0	34
Smolensk	16.9	19.2	26.1	39.6	54.0	60.4	63.7	60.4	51.1	40.1	29.3	21.0	40.1	28
Sortavala	14.2	13.6	22.6	34.5	46.2	45.8	62.7	58.8	49.6	37.3	29.2	20.8	37.1	20
Stalingrad	14.2	18.0	27.7	46.0	62.6	71.1	76.5	73.2	60.8	46.4	32.0	21.6	45.8	21
Tambov	12.0	14.9	23.7	40.8	57.2	64.0	68.4	64.4	53.1	41.0	27.9	18.1	40.5	35
Ufa	3.6	10.0	20.3	38.5	56.3	64.6	68.2	63.7	52.0	37.8	20.1	9.3	37.0	21
Uman'	19.8	24.6	31.6	44.2	57.9	67.8	67.1	65.3	56.7	45.7	33.6	26.1	44.6	35
Velikiye Luki	18.1	19.8	26.8	40.1	53.6	60.4	63.9	60.3	51.3	40.8	30.2	22.3	40.6	35
Vil'nyus	22.9	23.6	32.0	44.4	54.3	58.2	63.8	60.3	54.9	44.0	32.2	23.2	42.8	10
Vologda	10.4	13.5	21.4	35.8	50.5	58.6	63.7	58.5	48.4	36.5	24.4	14.9	36.5	32
Warszawa	25.7	27.6	34.7	45.7	57.2	62.8	65.4	63.8	56.6	57.2	36.0	28.7	46.0	25

TABLE V - 16

MEAN DAILY MAXIMUM TEMPERATURE (^{O}F.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk*	9.3	10.8	22.1	36.3	46.6	57.0	63.5	59.2	48.7	36.0	22.6	11.5	35.3	18
Astrakhan'	21.9	28.6	38.5	55.2	71.8	80.1	85.5	82.8	70.3	57.6	39.0	28.9	55.0	18
Helsinki	26.2	25.7	32.4	42.6	54.7	63.0	70.9	66.0	56.8	45.0	36.7	30.6	45.9	20
Kazan'	8.4	14.5	25.3	43.0	62.8	70.3	74.8	71.1	57.0	42.8	42.6	12.9	42.3	18
Kem'*	12.6	13.3	23.9	37.0	46.6	54.9	61.7	58.5	49.5	37.9	24.8	16.2	36.4	18
Khar'kov	20.7	26.1	33.6	50.4	67.6	73.9	77.7	76.5	65.1	52.5	34.3	24.8	50.3	18
Kishinev	31.1	32.5	47.7	58.9	74.1	78.6	83.1	82.4	73.2	61.9	48.2	34.5	58.9	13
Kiyev	23.5	28.0	35.2	49.3	65.5	70.9	73.9	73.2	63.3	51.6	35.4	27.1	37.7	18
Kola*	11.5	11.3	22.6	35.2	42.6	52.0	57.2	55.2	46.6	34.0	21.6	13.6	33.6	18
Kuybyshev*	9.0	15.8	25.9	44.4	65.7	73.2	77.4	75.7	60.8	45.9	27.7	14.7	44.7	13
Leningrad*	19.0	19.8	28.0	41.5	54.5	62.8	67.5	63.5	54.1	43.7	30.9	21.7	42.3	18
Mezen'*	7.2	7.9	19.9	33.4	43.9	53.2	61.2	57.4	47.1	33.4	18.9	7.9	32.6	18
Minsk*	21.9	25.5	33.3	46.2	61.9	68.0	70.3	68.2	59.2	47.8	33.1	24.4	46.6	18
Moskva	14.4	19.2	29.1	43.5	60.4	67.3	71.1	67.8	55.8	44.1	28.2	17.4	43.2	18
Odessa	28.6	32.9	39.2	51.8	66.7	74.5	79.3	78.6	68.4	57.6	41.9	33.1	54.4	18
Onega*	10.6	14.5	24.4	38.3	48.0	57.7	64.2	60.3	50.4	37.4	24.4	13.3	37.0	22
Pinsk	25.3	30.0	36.9	49.3	65.5	70.7	73.8	72.1	62.8	51.4	36.7	27.5	50.2	20
Rīga	26.4	27.9	34.3	45.7	59.2	65.7	69.4	66.4	58.1	48.7	26.5	27.3	47.1	20
Rostov-na-Donu*	23.2	29.7	37.9	53.6	69.4	77.2	82.6	82.4	70.5	57.7	37.9	28.8	54.2	18
Sevastopol'	38.7	41.0	45.9	54.1	65.5	73.8	78.8	79.3	70.7	62.2	49.3	43.0	58.5	18
Sortavala	21.2	20.8	31.1	42.8	55.6	64.9	72.5	67.3	56.8	42.6	34.0	26.4	44.7	20
Stalingrad*	13.6	23.5	31.6	51.6	69.8	78.4	84.4	82.8	68.7	53.8	33.6	23.4	51.3	13
Tallinn	27.0	25.0	32.0	42.0	56.0	62.0	70.0	66.0	58.0	47.0	38.0	31.0	46.0	15
Ufa	5.5	13.6	25.2	42.8	62.2	70.5	73.8	70.0	57.0	41.4	22.6	11.1	41.3	18
Velikiye Luki*	19.9	22.5	32.2	45.4	61.0	67.6	70.5	66.9	57.2	46.8	32.0	22.1	45.4	18
Vil'nyus	27.3	28.6	37.8	52.2	64.0	66.9	72.7	68.4	63.0	50.0	36.3	27.5	49.6	10
Vologda*	12.4	15.6	26.1	42.4	57.1	65.8	70.3	65.1	53.4	41.0	25.9	14.2	40.8	14
Vyborg	23.0	23.0	32.0	44.0	56.0	65.0	73.0	58.0	57.0	44.0	35.0	27.0	46.0	20
Warszawa	30.2	32.4	41.0	53.6	66.6	72.3	74.8	73.0	64.9	53.8	40.3	32.4	52.9	25

* Mean 1300 temperature

TABLE V - 17

MEAN DAILY MINIMUM TEMPERATURE (^{O}F.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	1.2	0.3	7.9	22.8	35.4	44.4	51.3	48.4	40.5	30.2	16.3	4.3	25.2	18
Astrakhan'	11.1	17.8	25.0	38.8	54.5	64.9	68.9	64.8	53.2	41.5	28.6	21.0	40.8	18
Helsinki	16.7	15.4	21.6	31.1	40.8	49.3	56.8	54.1	46.6	36.3	30.0	22.3	35.1	20
Kazan'	-0.2	4.5	13.1	30.4	46.0	53.2	57.6	54.3	44.2	33.4	17.6	5.2	29.9	18
Kem'	5.4	2.5	8.8	22.3	32.7	41.4	47.8	45.5	38.1	28.9	18.3	9.7	25.1	35
Kerch'	26.0	29.0	33.0	42.0	54.0	62.0	66.0	65.0	56.0	48.0	37.0	33.0	46.0	7
Khar'kov	10.9	15.6	23.5	35.4	46.8	54.0	56.7	53.4	44.4	35.8	25.7	16.3	34.9	18
Kishinev	19.8	22.6	30.6	39.2	50.9	57.0	60.1	58.3	50.4	41.9	32.4	24.8	40.7	33
Kiyev	16.0	19.0	25.7	36.9	50.0	55.4	58.1	56.3	47.8	39.2	28.0	20.3	37.7	18
Kola	4.1	1.4	8.1	20.5	30.9	39.7	46.0	43.9	36.7	26.6	14.4	5.5	23.2	18
Kuybyshev	0.3	5.0	15.1	31.5	48.6	57.0	60.3	57.0	45.9	33.8	19.9	7.3	31.8	11
Leningrad	12.4	11.5	17.6	30.4	41.9	50.9	56.1	53.4	44.6	36.9	26.1	16.5	33.2	18
Mezen'	-0.9	-1.3	6.4	19.6	31.3	39.7	46.9	44.6	37.4	25.5	12.6	1.9	22.0	25
Minsk	13.6	15.8	22.5	33.1	45.1	51.6	54.3	51.8	44.2	36.1	26.4	17.6	34.3	17
Moskva	5.4	7.5	15.4	29.3	42.4	49.2	53.8	50.9	41.7	32.9	21.4	10.0	30.0	18
Nikolayev	19.0	24.0	31.0	40.0	52.0	60.0	63.0	61.0	52.0	43.0	32.0	25.0	43.0	18
Odessa	21.7	26.2	27.0	32.0	41.2	54.5	61.7	65.5	64.8	56.1	47.7	34.3	44.4	18
Onega*	9.0	9.1	14.0	29.5	41.7	52.2	58.3	53.2	43.7	32.7	22.8	12.6	31.6	22
Pinsk	16.5	19.8	26.4	37.4	48.7	53.6	56.5	54.3	46.6	38.1	28.8	21.2	37.3	18
Rīga	20.5	20.7	25.1	34.2	44.4	52.0	56.3	53.6	46.6	39.2	30.6	21.9	37.1	17
Rostov-na-Donu	14.9	19.4	28.0	39.9	52.5	59.9	63.7	61.2	51.6	41.4	30.6	22.8	40.5	32
Saratov	6.4	8.8	16.0	35.4	50.2	59.9	63.5	59.7	47.7	37.4	23.0	10.9	34.9	10
Sevastopol'	30.0	32.2	35.6	42.3	51.8	60.4	64.9	64.2	56.5	50.2	39.0	34.5	46.8	18
Smolensk	12.6	14.7	19.4	32.2	44.2	52.2	54.1	51.8	43.3	35.6	25.5	13.5	33.3	10
Solovetskiye Ostrova	9.0	6.0	12.0	24.0	33.0	41.0	49.0	48.0	42.0	33.0	24.0	15.0	28.0	24
Sortavala	7.2	6.3	14.0	26.2	36.9	46.6	52.9	50.2	42.4	32.0	24.4	15.1	29.5	20
Stalingrad	8.2	12.0	20.8	37.8	51.8	61.2	65.5	62.2	50.9	37.6	27.3	16.2	37.6	14
Taganrog	14.0	21.0	27.0	40.0	54.0	62.0	66.0	64.0	53.0	43.0	30.0	22.0	41.0	18
Tallinn	18.0	15.0	22.0	31.0	41.0	47.0	55.0	63.0	46.0	38.0	30.0	23.0	35.0	15
Tambov	4.5	7.7	16.7	33.1	45.9	54.0	57.2	53.8	44.2	33.6	23.0	12.7	32.2	21
Ufa	-3.3	2.8	12.6	28.8	45.9	53.8	57.7	54.3	44.1	31.6	15.1	3.4	28.9	18
Uman'	19.8	24.6	31.6	44.2	57.9	62.8	67.1	65.3	56.7	45.7	33.6	26.1	44.6	35
Velikiye Luki	11.7	12.7	19.0	31.8	43.9	50.9	54.5	51.8	43.2	35.8	25.7	15.1	33.0	18
Vil'nyus	18.5	18.7	26.2	36.5	44.6	49.6	55.0	52.2	46.8	38.1	28.0	19.0	36.1	10
Vologda	3.4	6.1	14.0	28.4	41.0	48.9	54.0	50.4	41.7	31.6	20.1	9.0	29.1	25
Vyborg	10.0	9.0	16.0	28.0	38.0	48.0	54.0	51.0	43.0	33.0	27.0	17.0	31.0	20
Warszawa	21.2	22.8	28.4	37.8	47.7	53.2	56.1	54.7	48.4	40.6	31.8	25.0	39.0	25

* Mean 0700 temperature.

TABLE V - 18

ABSOLUTE MAXIMUM TEMPERATURE (°F.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
Arkhangel'sk*	41	39	54	67	83	90	94	89	77	65	60	39	95
Astrakhan'*	49	54	72	87	98	107	110	104	96	85	67	53	71
Helsinki	47	43	53	67	66	84	88	84	74	59	49	46	44
Kazan'	39	38	52	78	92	100	103	96	94	73	69	42	47
Kem'	41	42	50	64	81	88	90	94	73	63	51	44	44
Kerch'	59	58	68	75	82	89	93	92	88	80	70	62	43
Khar'kov	47	53	66	79	87	94	99	98	95	77	68	50	99
Kishinev	57	61	77	87	93	95	102	103	93	85	81	63	37
Kiyev	47	50	70	80	93	92	94	95	92	81	61	53	54
Kola	45	41	46	58	83	86	90	85	67	56	44	42	38
Kuybyshev	36	38	51	79	89	98	104	97	90	74	53	39	12
Leningrad	42	43	55	72	86	94	97	93	85	69	56	46	157
Mezen'	37	36	44	69	80	88	87	86	74	59	45	38	33
Minsk	40	43	63	75	84	89	89	91	82	74	53	46	18
Moskva	43	43	64	78	95	93	97	100	89	72	57	46	105
Nikolayev	54	61	72	83	100	91	102	103	99	83	70	59	88
Odessa	54	59	70	75	91	92	95	94	90	86	70	58	38
Onega	38	40	50	67	81	83	87	85	75	63	49	41	20
Ostrov Kolguyev	35	34	34	36	54	61	67	68	54	46	38	36	6
Ostrov Vaygach	33	33	33	37	43	71	73	70	62	48	43	33	12
Pinsk	48	48	68	75	90	92	95	95	87	77	62	49	25
Riga	44	44	62	75	86	89	92	90	81	68	52	50	25
Rostov-na-Donu	55	54	55	80	82	89	99	102	100	95	89	69	30
Saratov*	20	39	60	80	90	102	100	97	92	81	54	43	10
Sevastopol'	66	72	80	84	90	93	100	98	97	89	77	67	37
Smolensk	40	40	59	70	81	87	87	88	77	73	50	48	10
Sortavala	45	42	54	77	85	89	95	92	76	62	48	46	28
Stalingrad	48	46	70	83	92	101	106	102	95	82	61	50	21
Taganrog	45	51	74	80	89	96	100	98	92	86	63	51	30
Tallinn	43	44	54	73	82	79	89	88	77	64	53	47	15
Tambov	38	39	59	78	91	96	103	96	96	78	56	47	30
Ufa	36	45	50	77	94	93	98	91	85	72	51	38	21
Uman'	49	49	68	80	90	89	96	94	90	85	61	54	30
Velikiye Luki	45	40	64	78	87	87	91	92	81	74	53	48	29
Vil'nyus	46	49	61	77	83	91	88	88	81	73	55	45	12
Vologda	40	39	50	74	84	88	93	90	78	72	50	40	37
Vyborg	45	48	56	75	85	91	92	92	79	74	55	44	50
Warszawa	51	54	69	78	93	96	96	98	88	77	60	57	44

* Highest 1300 temperature.

TABLE V - 19

ABSOLUTE MINIMUM TEMPERATURE (°F.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
Arkhangel'sk	-49	-41	-35	-18	8	26	34	33	20	-5	-22	-45	37
Astrakhan'	-22	-20	-10	16	34	43	52	45	33	16	0	-22	33
Helsinki	-23	-21	-16	12	25	34	42	32	28	14	-5	-18	44
Kazan'	-44	-35	-27	-2	20	29	40	35	22	-8	-34	-36	52
Kem'	-41	-41	-32	-16	10	26	30	24	16	-5	-24	-34	44
Kerch'	-2	-13	2	23	28	44	50	52	30	28	9	3	34
Khar'kov	-26	-34	-17	9	21	30	40	32	21	1	-11	-26	37
Kishinev	-22	-25	-9	19	31	41	42	39	31	18	-7	-10	37
Kiyev	-19	-20	-8	17	28	36	42	41	28	0	-4	-22	37
Kola	-45	-36	-38	-18	3	27	30	29	17	-10	-23	-39	27
Kuybyshev	-35	-37	-18	-7	28	40	46	42	26	8	-15	-23	11
Leningrad	-28	-38	-19	1	22	33	43	37	28	9	1	-39	37
Mezen'	-47	-43	-47	-25	4	23	28	25	13	-14	-45	-52	38
Minsk	-27	-18	-18	11	25	34	40	36	27	13	-4	-22	22
Moskva	-43	-40	-26	1	19	28	38	33	23	-1	-9	-40	37
Nikolayev	-22	-21	-6	21	28	41	49	47	27	9	-6	-16	89
Odessa	-11	-14	5	21	34	42	50	47	32	8	6	-5	37
Onega	-45	-45	-32	-8	13	27	35	30	24	-6	-28	-43	20
Ostrov Kolguyev	-23	-29	-33	-21	-4	15	30	25	17	3	-5	-23	..
Ostrov Vaygach	-45	-40	-42	-30	-11	14	16	23	18	4	-22	-37	..
Pinsk	-21	-24	-16	5	27	34	43	38	28	17	-4	-16	21
Riga	-20	-12	-5	19	30	35	45	42	29	20	6	-11	17
Rostov-na-Donu	-19	-15	-6	18	30	36	47	40	25	14	1	-11	24
Saratov	-25	-17	-9	3	29	38	49	42	30	17	-6	-20	10
Sevastopol'	-4	0	4	26	30	41	54	52	36	31	10	3	27
Smolensk	-25	-16	-12	3	24	32	44	40	27	20	1	-25	10
Sortavala	-34	-39	-25	-13	18	27	36	33	19	6	-11	-37	28
Stalingrad	-30	-23	-14	13	23	39	49	37	32	7	-6	-26	22
Taganrog	-16	-22	-5	13	37	42	45	44	27	23	4	-10	30
Tallinn	-17	-19	-10	11	22	32	43	39	28	11	0	-8	15
Tambov	-38	-31	-17	0	17	33	39	33	24	5	-13	-35	21
Ufa	-42	-39	-23	-2	21	30	40	38	22	2	-26	-37	27
Uman'	-26	-27	-13	19	25	34	38	36	25	-1	-9	-19	25
Velikiye Luki	-30	-35	-22	6	24	27	40	37	22	15	-6	-26	25
Vil'nyus	-25	-31	-23	10	26	32	41	39	29	20	-9	-14	37
Vologda	-42	-39	-29	-5	14	25	37	30	23	-3	-19	-39	25
Vyborg	-36	-39	-33	-3	20	30	38	33	21	7	-14	-28	50
Warszawa	-22	-28	-14	22	30	35	43	41	29	15	0	-5	44

TABLE V - 20

MEAN NUMBER OF DAYS WITH DAILY MAXIMUM TEMPERATURE ≦ 32°F.

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	30	27	27	9	3	0	0	0	0	8	22	29	155	10
Astrakhan'	25	18	8	1	0	0	0	0	0	0	7	18	77	10
Kazan'	30	26	22	4	0	0	0	0	0	4	22	29	137	13
Kem'	29.3	26.5	25.6	8.0	1.9	0.0	0.0	0.0	0.0	6.7	19.5	28.6	146.1	10
Khar'kov	24	21	13	1	0	0	0	0	0	1	12	21	93	10
Kishinev	16.4	12.3	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.0	12.9	49.9	37
Kiyev	22	18	10	1	0	0	0	0	0	1	10	20	82	10
Kola	29.9	26.7	27.0	10.7	3.2	0.0	0.0	0.0	0.0	11.5	20.2	28.4	157.6	10
Kuybyshev	29.5	26.1	21.1	2.2	0.0	0.0	0.0	0.0	0.0	2.5	18.2	27.1	126.7	8
Leningrad	26.3	23.9	21.2	3.0	0.0	0.0	0.0	0.0	0.0	2.0	12.5	22.8	111.7	10
Mezen'	30.2	27.5	25.2	11.5	4.9	0.2	0.0	0.0	0.4	13.2	25.9	30.6	169.6	13
Minsk	23	19	12	1	0	0	0	0	0	1	11	20	87	9
Moskva	27	24	18	2	0	0	0	0	0	2	16	25	114	10
Odessa	17	13	4	0	0	0	0	0	0	0	4	12	50	10
Rostov-na-Donu	22.1	16.8	8.9	0.4	0.0	0.0	0.0	0.0	0.0	0.2	7.3	16.8	72.5	10
Saratov	28.2	22.3	17.9	2.5	0.0	0.0	0.0	0.0	0.0	1.0	15.2	25.2	112.3	13
Sevastopol'	6.4	4.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.6	16.7	10
Stalingrad	28.0	22.7	15.6	1.1	0.0	0.0	0.0	0.0	0.0	0.7	13.8	22.1	104.0	10
Tambov	28	24	17	2	0	0	0	0	0	2	16	25	114	10
Ufa	30	27	22	4	0	0	0	0	0	5	22	29	139	10
Uman'	21	18	10	1	0	0	0	0	0	0	9	20	79	10
Velikiye Luki	24	22	13	1	0	0	0	0	0	1	12	22	95	10
Vologda	29.1	26.1	21.4	4.3	0.4	0.0	0.0	0.0	0.0	5.2	18.1	27.2	131.8	10

TABLE V - 21

MEAN NUMBER OF DAYS WITH DAILY MINIMUM TEMPERATURE ≦ 32°F.

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	30.9	28.2	30.6	23.5	11.2	1.8	0.0	0.0	2.1	15.9	28.3	30.8	203.3	18
Astrakhan'	30.3	27.2	24.3	5.5	0.0	0.0	0.0	0.0	0.0	4.3	19.1	27.3	138.0	17
Kazan'	31	28	29	17	2	0	0	0	2	15	28	31	183	13
Kem'	31.0	28.1	30.7	24.8	13.2	2.2	0.1	0.6	5.3	18.4	27.4	30.4	212.1	18
Khar'kov	29	26	27	11	1	0	0	0	1	8	21	28	152	10
Kishinev	26.5	22.6	16.7	4.2	0.0	0.0	0.0	0.0	0.2	3.1	13.5	23.4	110.2	37
Kiyev	29	26	26	9	0	0	0	0	0	4	20	28	142	10
Kola	30.8	28.1	30.4	25.2	17.7	3.5	0.0	0.1	5.2	20.8	27.3	30.8	219.9	13
Kuybyshev	30.8	28.0	29.6	15.2	0.8	0.0	0.0	0.0	0.8	12.7	26.0	30.4	174.4	12
Leningrad	30.3	27.7	29.4	17.6	3.9	0.0	0.0	0.0	0.8	8.4	22.2	28.4	168.7	18
Mezen'	30.8	28.2	30.7	23.5	17.5	4.8	0.3	1.0	6.6	21.2	29.7	31.0	225.3	13
Minsk	30	27	29	12	1	0	0	0	1	8	23	29	160	7
Moskva	30	28	29	18	2	0	0	0	1	10	23	29	170	10
Odessa	24.2	20.3	14.7	1.7	0.0	0.0	0.0	0.0	0.1	0.6	12.1	21.4	95.1	18
Onega	30.9	28.2	30.4	22.4	10.2	1.5	0.0	0.1	2.9	18.2	27.7	30.4	202.9	20
Rostov-na-Donu	28.9	24.6	22.1	4.7	0.0	0.0	0.0	0.0	0.1	3.7	18.2	24.8	127.1	10
Saratov	30.5	27.6	27.8	11.4	0.3	0.0	0.0	0.0	0.4	8.1	24.9	30.4	161.4	14
Sevastopol'	15.8	13.1	8.6	1.1	0.0	0.0	0.0	0.0	0.0	0.1	5.8	10.7	55.2	18
Stalingrad	30.6	27.8	25.9	10.6	0.0	0.0	0.0	0.0	0.2	6.9	22.9	28.8	153.7	8
Tambov	30	28	29	17	2	0	0	0	1	10	24	29	170	10
Ufa	31	28	30	21	2	0	0	0	1	14	28	31	186	10
Uman'	28	25	24	9	0	0	0	0	1	6	21	27	141	10
Velikiye Luki	30	27	29	14	3	0	0	0	1	8	22	29	163	10
Vologda	30.8	28.2	29.7	19.3	4.7	0.5	0.0	0.0	2.4	15.1	26.1	30.4	187.2	18

TABLE V - 22

MEAN AND EXTREME DATES OF FIRST AND LAST FROST

	First frost (month and day)		Last frost (month and day)	
	Mean	Extreme	Mean	Extreme
Kishinev	10-11	9-20	4-12	4-29
Kiyev	10-14	9-23	4-22	5-13
Kola	9-7	8-15	6-6	6-26
Leningrad	10-8	9-22	5-6	5-21
Mezen'	9-2	8-10	6-15	7-10
Minsk	10-4	9-17	5-3	6-12
Moskva	9-25	9-7	5-17	6-12
Onega	9-14	8-17	5-31	6-20
Rostov-na-Donu	10-16	9-19	4-10	5-10
Saratov	10-7	9-16	4-28	6-2
Sevastopol'	11-16	10-16	3-30	4-25
Stalingrad	10-12	9-27	4-19	5-7
Tambov	9-28	9-5	5-6	5-27
Uman'	10-6	9-9	4-29	5-25
Vologda	9-23	9-5	5-18	6-18

C. Humidity

TABLES V-23 and V-24 give data on relative humidity.

TABLE V - 23

MEAN RELATIVE HUMIDITY (%)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	88	87	83	76	73	68	74	80	85	87	90	89	82	25
Astrakhan'	86	84	78	67	59	57	58	60	66	75	83	87	72	19
Helsinki	87	87	82	78	71	72	73	80	83	86	88	89	81	26
Kazan'	87	85	81	72	64	66	65	72	76	80	86	87	77	20
Kem'	88	87	83	81	75	73	80	86	88	88	90	90	84	21
Kerch'	88	85	84	78	76	73	67	88	73	79	85	88	79	20
Kishinev	83	82	79	68	67	68	65	64	70	79	83	83	74	20
Kiyev	86	84	82	70	62	68	69	68	72	78	85	89	76	25
Kola	86	85	80	75	71	70	75	80	83	86	88	88	81	24
Leningrad	86	85	79	71	63	63	67	74	79	82	86	87	77	25
Mezen'	87	85	81	75	72	69	73	80	85	87	89	88	81	25
Nikolayev	87	86	83	72	69	68	64	62	70	79	86	88	76	33
Odessa	88	87	80	72	67	63	59	59	67	78	84	87	74	19
Onega	87	86	78	74	69	66	73	80	83	87	90	88	80	17
Pinsk	88	86	82	73	70	71	74	78	80	86	90	90	80	15
Riga	88	84	81	73	70	67	71	76	79	85	89	88	79	16
Rostov-na-Donu	86	87	84	68	62	65	59	55	63	73	84	88	73	25
Saratov	87	86	87	75	59	56	61	61	65	78	87	89	74	11
Sevastopol'	80	80	75	70	70	69	66	66	68	76	78	79	73	17
Smolensk	85	85	80	77	67	73	76	77	83	87	89	86	80	3
Solovetskiye Ostrova	88	87	83	80	75	73	79	83	84	84	87	88	83	25
Sortavala	87	86	80	75	69	71	72	79	84	85	89	89	83	27
Taganrog	91	92	87	75	71	69	65	70	70	82	88	92	79	8
Tallinn	88	87	84	82	79	76	78	84	85	86	89	89	84	15
Tambov	86	84	83	73	64	67	67	69	76	80	87	87	77	17
Uman'	89	87	85	72	64	71	69	64	70	79	86	90	77	22
Vil'nyus	88	86	81	73	66	68	71	75	81	85	89	90	79	..
Vologda	84	82	77	73	67	67	72	78	82	83	85	85	78	20
Voronezh	83	81	83	74	64	75	68	71	74	80	87	84	77	7
Vyborg	88	87	80	76	79	69	70	78	83	85	89	89	81	30
Warszawa	87	85	81	75	70	71	73	75	79	85	88	89	80	..

TABLE V - 24

MEAN RELATIVE HUMIDITY (%) AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
							0700							
Arkhangel'sk	89	89	88	85	79	75	79	87	91	92	91	88	86	20
Astrakhan'	90	90	89	79	67	64	65	70	78	86	89	90	80	19
Helsinki	88	89	88	84	76	76	77	86	90	90	90	90	85	26
Kazan'	88	88	88	80	72	74	71	82	86	87	88	88	83	20
Kem'	88	88	86	83	74	72	79	87	91	90	91	90	85	21
Kishinev	88	87	88	81	78	78	76	77	84	91	91	89	84	20
Kiyev	89	89	90	81	72	76	78	80	85	88	90	91	84	25
Kola	86	86	86	81	75	74	80	86	90	89	88	88	84	24
Leningrad	87	87	86	80	70	70	75	82	87	88	88	88	82	25
Mezen'	87	86	86	81	76	73	78	86	92	91	90	88	84	25
Minsk	88	88	91	83	77	78	89	87	90	91	92	91	87	9
Moskva	86	86	86	79	69	72	77	83	89	88	87	86	82	25
Odessa	91	91	87	82	75	70	68	71	78	86	89	90	82	19
Onega	87	88	84	81	74	70	78	86	90	91	91	88	84	17
Riga	89	88	87	81	75	71	76	83	88	91	91	89	84	16
Rostov-na-Donu	89	90	90	79	70	72	68	66	76	84	89	91	80	25
Sevastopol'	82	84	79	75	72	71	68	70	73	80	81	80	76	7
Sortavala	87	88	86	82	73	75	77	85	91	90	90	89	84	27
Tambov	88	88	90	82	73	75	76	80	87	90	90	89	84	17
Uman'	91	91	91	82	73	78	78	73	84	90	92	92	85	22
Vologda	85	84	83	81	74	74	80	87	91	90	86	85	83	20
							1300							
Arkhangel'sk	88	87	79	71	66	61	64	70	77	86	90	89	77	20
Astrakhan'	80	73	62	48	42	42	41	41	45	56	73	82	57	19
Helsinki*	88	89	88	84	76	76	77	86	90	90	90	90	85	26
Kazan'	86	81	73	61	52	53	53	57	62	70	82	86	68	20
Kem'	87	84	73	65	60	61	66	70	73	81	88	89	75	21
Kishinev	77	74	67	52	51	53	49	48	53	64	72	79	62	20
Kiyev	83	78	72	57	48	54	55	52	56	66	78	85	65	25
Kola	86	83	73	66	63	63	68	70	74	82	88	88	75	24
Kuybyshev	85	82	82	65	47	46	50	49	53	67	83	87	66	9
Leningrad	85	82	71	60	53	54	57	63	68	75	83	86	70	25
Mezen'	86	83	74	66	63	61	64	69	75	82	88	87	75	25
Minsk	86	81	71	65	56	59	63	63	69	73	86	89	72	9
Moskva	82	77	68	56	47	51	54	56	62	69	80	83	65	25
Odessa	84	81	71	60	54	51	47	46	55	68	78	83	65	19
Onega	86	82	70	65	60	60	65	70	74	82	88	88	74	17
Riga	86	80	72	63	59	57	60	64	65	77	85	87	71	16
Rostov-na-Donu	82	82	75	55	48	51	45	40	47	60	79	85	62	25
Sevastopol'	70	70	64	57	56	55	52	51	52	62	67	71	61	7
Sortavala*	86	83	72	66	59	61	61	68	73	79	88	88	74	27
Tambov	81	77	72	59	48	50	50	51	58	66	82	84	65	17
Uman'	85	82	76	58	49	56	52	48	52	65	78	87	66	22
Vologda	83	79	71	62	54	54	58	63	69	74	82	84	69	20
							2100							
Arkhangel'sk	88	89	85	81	76	71	76	83	86	89	91	89	84	20
Astrakhan'	87	88	83	74	68	66	68	70	74	82	86	88	78	19
Helsinki	88	87	83	80	74	75	76	83	86	87	89	89	83	26
Kazan'	87	86	83	76	68	70	72	76	79	82	87	88	80	20
Kem'	88	87	83	81	75	73	80	86	88	88	90	90	84	21
Kishinev	85	84	81	70	71	72	69	67	74	82	85	87	77	20
Kiyev	87	86	84	72	65	73	73	72	75	80	86	90	65	25
Kola	86	86	82	78	75	73	78	75	86	87	88	88	83	24
Leningrad	87	86	79	72	66	66	70	77	82	83	86	88	79	25
Mezen'	87	86	82	78	76	73	78	85	88	89	90	88	83	25
Minsk	90	89	84	77	77	80	83	87	88	89	91	90	85	9
Moskva	85	84	80	72	65	80	74	79	82	82	84	86	78	25
Odessa	88	87	80	72	67	63	59	59	67	78	84	87	74	19
Onega	87	87	80	76	72	68	76	84	86	89	90	89	82	17
Riga	88	85	84	74	75	74	77	82	83	87	90	89	82	16
Rostov-na-Donu	87	88	86	71	67	72	65	59	66	74	85	89	76	25
Sevastopol'	81	81	75	75	76	76	75	73	72	77	81	80	77	7
Sortavala	87	87	81	78	74	76	78	85	88	87	89	89	83	27
Tambov	88	88	88	79	72	76	73	76	83	84	89	89	82	17
Uman'	90	89	87	75	69	79	76	71	74	81	87	91	81	22
Vologda	85	83	78	75	72	74	77	84	87	85	86	85	81	20

* 1400 observations.

D. Surface wind

TABLES V-25 through V-28 give data on surface wind.

TABLE V - 25

MEAN WIND VELOCITY (M.P.H.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	11.9	9.5	10.6	9.0	10.2	10.4	8.7	9.5	10.7	11.3	12.4	9.7	10.3	10
Astrakhan'	9.5	10.0	10.4	10.8	8.7	8.6	6.7	7.1	8.0	8.4	9.8	9.4	9.0	10
Helsinki	10.2	9.1	9.4	8.1	8.4	8.3	7.6	7.9	9.1	9.9	9.9	10.1	9.0	16
Kazan'	8.3	9.9	8.2	7.9	7.8	6.5	6.9	6.3	7.1	7.6	8.6	8.0	7.7	13
Kem'	11.0	8.8	10.1	8.8	10.5	10.1	9.2	9.9	10.9	9.8	11.6	10.2	10.1	10
Kerch'	10	10	10	10	9	8	8	9	9	9	10	10	9	23
Khar'kov	7.9	8.0	7.4	8.3	6.6	5.3	4.8	5.1	5.5	6.3	7.2	6.8	6.6	9
Kishinev	8.3	9.0	8.8	9.2	7.8	6.6	6.6	6.3	6.9	6.6	8.0	7.9	7.7	20
Kiyev	9.1	10.4	9.6	9.8	8.8	8.1	8.1	7.8	8.7	9.2	9.2	9.5	9.0	10
Kola	9.8	9.1	8.7	7.6	9.2	10.1	9.0	7.4	8.1	8.5	9.8	9.4	8.9	10
Kuybyshev	6.9	8.1	8.3	8.1	7.7	7.6	6.7	7.1	7.0	8.4	8.5	7.7	7.7	9
Leningrad	10.4	10.1	10.4	8.8	8.5	8.8	8.7	8.7	10.0	9.7	10.3	10.6	9.6	10
Mezen'	7.8	8.6	8.6	8.7	10.3	9.4	8.7	7.8	8.2	8.1	7.9	7.5	8.5	13
Minsk	8.4	8.6	8.9	8.5	7.9	6.9	7.1	6.4	7.8	7.5	8.0	8.2	7.8	10
Moskva	8.4	8.1	8.3	7.5	7.5	7.0	6.9	7.2	8.0	7.8	9.0	8.4	7.8	10
Nikolayev	10	11	11	11	9	8	7	8	8	9	9	10	9	32
Odessa	11.5	11.9	11.1	11.2	9.7	9.9	9.4	9.2	9.5	9.7	10.6	10.9	10.4	10
Ostrov Kolguyev	18	17	15	15	16	16	14	14	15	15	16	17	16	..
Ostrov Vaygach	18	17	17	17	16	15	15	13	15	19	20	19	17	..
Rostov-na-Donu	13.9	12.3	11.3	11.8	10.2	9.4	9.3	9.1	9.0	10.2	10.7	10.9	10.7	10
Saratov	8.2	8.3	7.2	8.4	8.1	8.3	8.4	8.3	8.7	8.0	7.9	7.2	8.1	13
Sevastopol'	6.4	6.7	6.0	5.3	4.5	5.0	4.2	5.4	5.0	4.6	5.8	6.0	5.4	10
Smolensk	10.0	9.2	9.6	7.8	6.8	6.6	5.9	6.0	6.4	8.0	9.0	8.3	7.8	3
Sortavala	6.9	6.2	5.8	5.3	6.3	6.5	5.7	6.0	6.7	6.9	6.6	5.9	6.2	31
Stalingrad	5.7	5.3	5.4	6.0	4.3	4.4	3.8	3.9	4.5	4.2	4.7	4.5	4.7	8
Taganrog	14	14	14	14	13	11	9	9	11	13	13	13	12	21
Ufa	6.8	8.3	7.5	7.6	6.9	6.2	5.9	5.8	6.4	7.2	7.6	7.2	7.0	10
Uman'	7.7	9.4	7.6	8.7	6.9	5.8	4.9	4.7	6.0	5.9	6.9	7.4	6.8	10
Velikiye Luki	7.6	7.4	8.2	6.4	5.5	5.7	5.4	5.2	7.1	7.8	7.5	8.9	6.9	10
Vologda	6.7	7.4	7.4	6.1	6.6	6.0	4.9	5.5	6.5	6.8	7.0	6.8	6.5	10
Voronezh	11.4	11.0	12.0	10.6	9.7	9.1	9.4	9.8	9.7	10.2	11.2	11.1	10.4	11

TABLE V - 26

PREVAILING SURFACE WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	SE	SE	SE	SE	NW	NW	NW	NW	SW	SW	SW	SE	SE	25
Astrakhan'	E	E	E	E	E	W	SE	E	E	E	SE	E	E	11
Helsinki	SW	SW	SW	SW	SW	SW	SW	SW	SW	NW	SW	SW	SW	26
Kazan'	S	S	SE	SE	SW	W	SW	SW	SW	SW	SW	S	S	35
Kem'	W	W	W	SW	NE	NE	NE	NE	SW	W	W	W	W	12
Kishinev	NW	NW	SE	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	37
Kiyev	NW	SE	NW	SE	NW	N	NW	NW	NW	SE	SE	W	NW	13
Kola	SW	SW	SW	SW	SW	N	N	N	SW	SW	SW	SW	SW	25
Kuybyshev	SW	SW	S	S	S	W	W	W	SW	SW	SW	SW	SW	9
Leningrad	S	SE	SE	SE	W	W	W	W	W	S	S	SE	W	28
Mezen'	S	S	S	S	N	N	N	NE	S	S	S	S	S	6
Moskva	S	S	S	S	S	W	W	W	W	S	SW	S	S	25
Odessa	N	N	NE	S	S	N	N	N	N	NE	N	N	N	47
Ostrov Kolguyev	SW	SW	SW	NE	E	NE	NE	N	SW	SW	SW	SW	SW	..
Ostrov Vaygach	SE	S	S	NE	NE	NE	NE	NE	SW	SE	SE	S	NE	..
Pinsk	W	W	SE	SE	NE	NW	NW	W	W	SE	W	W	W	3
Rostov-na-Donu	E	E	E	E	E	W	W	NW	E	E	E	E	E	23
Saratov	NW	NW	NW	NW	NW	NW	NW	NW	NW	W	S	NW	NW	7
Sevastopol'	NE	NE	NE	S	W	NW	NW	NW	NE	E	NE	NE	NE	43
Sortavala	NW	SE	SE	SE	SE	SE	S	S	NW	S	SE	S	S	36
Tambov	S	S	SE	SE	E	W	W	W	W	S	SW	S	S	18
Vil'nyus	S	S	S	S	S	W	W	SW	SW	S	SW	S	S	24
Vologda	SW	S	SE	SW	SW	NW	NW	W	NW	SW	SW	SW	SW	25
Warszawa	W	W	S	S	N	NW	W	W	W	S	S	S	W	24

TABLE V - 27

MEAN NUMBER OF DAYS WITH GALES (VELOCITY ≧ 32 M.P.H.)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	2.4	1.6	1.6	1.3	1.8	1.6	0.7	1.1	1.9	1.8	2.4	1.5	19.7	18
Astrakhan'	1.0	1.0	2.2	2.3	1.6	1.4	0.9	1.1	1.0	0.9	1.3	1.1	15.8	18
Kazan'	0	1	1	0	0	0	0	0	0	0	0	0	2	15
Kem'	2.0	1.1	1.7	1.1	1.9	1.8	1.3	1.4	2.4	1.6	1.4	1.3	19.0	18
Kerch'	1	1	2	1	1	0.5	0.5	1.5	2	2	1	2	15	32
Khar'kov	1	1	0	1	0	0	1	1	1	1	1	0	8	8
Kishinev	1.6	1.3	1.7	2.0	1.3	0.9	1.0	1.1	0.8	0.7	1.6	1.4	15.4	37
Kiyev	1	1	0	1	0	0	0	0	0	0	1	0	4	18
Kola	4.3	4.3	3.5	2.3	2.6	2.4	2.2	1.4	2.4	2.7	4.6	3.7	36.4	18
Kuybyshev	0.7	1.4	1.1	0.8	0.8	0.7	1.1	1.2	0.3	0.3	0.7	0.7	9.8	12
Leningrad	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.7	17
Mezen'	0.7	0.8	0.7	0.7	1.0	0.9	0.5	0.3	0.5	0.6	0.9	0.6	8.2	18
Minsk	2	2	1	2	1	1	1	1	1	1	1	1	15	12
Moskva	2	2	3	2	1	1	1	1	1	1	1	2	18	18
Nikolayev	2	2	3	2	2	1	1	1	1	2	2	2	21	39
Odessa	1	1	1	0	0	1	0	0	0	0	0	0	4	18
Onega	0.3	1.1	0.4	0.2	0.8	0.8	0.7	0.5	1.1	0.9	0.3	0.4	7.5	19
Ostrov Kolguyev	6	3	3	6	2	2	0	1	3	4	3	4	37	..
Ostrov Vaygach	9	8	8	8	7	5	5	4	4	9	10	8	85	..
Riga	4	2	2	1	2	1	1	2	3	2	3	3	26	10
Rostov-na-Donu	7.2	6.3	4.9	5.1	3.5	2.6	2.0	2.3	2.9	4.2	4.6	5.1	50.7	18
Saratov	2.8	2.5	1.7	1.6	2.1	2.6	2.7	2.6	1.6	1.9	2.2	1.9	26.2	18
Sevastopol'	3.5	2.5	2.2	2.4	0.9	0.5	1.7	2.3	2.8	2.3	2.1	3.5	26.7	10
Smolensk	3.0	3.2	2.4	1.5	1.3	0.8	0.5	1.5	1.3	0.8	3.4	2.3	22.0	10
Stalingrad	1.2	1.3	0.8	0.6	0.7	0.6	0.5	0.5	0.2	0.5	1.0	0.3	8.2	12
Taganrog	4	5	5	5	4	3	2	2	3	4	4	4	45	28
Tambov	1	1	0	0	1	1	0	0	0	0	1	0	5	18
Ufa	2.1	2.4	0.6	0.7	1.4	1.4	2.1	1.1	1.1	1.1	1.8	1.5	17.3	10
Uman'	2	1	1	1	2	1	1	1	1	1	1	2	15	18
Velikiye Luki	1	1	2	1	1	1	1	1	1	1	1	2	14	15
Vologda	0.1	0.1	0.3	0.1	0.4	0.2	0.1	0.2	0.3	0.2	0.1	0.1	2.2	18
Voronezh	0.2	0.3	0.0	0.0	0.7	0.0	0.6	0.0	0.0	0.1	0.6	0.4	2.9	8

TABLE V - 28

PERCENTAGE FREQUENCY OF SURFACE WINDS OF BEAUFORT FORCE AND DIRECTION AT SPECIFIED HOURS (L.S.T.)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
ASTRAKHAN' (9 years of record)																	
January:																	
0700 (310 obs):																	15.2
1-2	2.9	0.7	1.3	1.9	6.8	1.3	0.9	0.0	1.9	0.0	0.3	1.0	1.3	0.3	1.0	0.3	
3-4	2.6	0.6	2.3	6.2	16.1	2.3	2.3	0.0	4.6	0.9	4.2	2.2	4.2	1.6	0.6	1.1	
5-6	0.0	0.0	0.6	1.9	1.6	0.3	0.0	0.0	1.0	0.7	0.0	0.3	1.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	1.0	0.7	0.3	0.3	0.0	0.3	0.6	0.0	0.3	0.0	0.3	0.0	0.0	
1300 (309 obs):																	17.2
1-2	2.3	0.3	1.6	2.6	2.9	1.0	0.0	0.0	0.6	0.0	0.3	0.0	1.0	0.0	0.0	0.0	
3-4	3.2	1.0	2.7	5.8	14.5	2.9	3.9	1.3	5.2	2.3	3.3	3.2	4.6	1.0	1.0	0.0	
5-6	0.0	0.3	0.0	1.6	2.6	0.3	0.7	0.0	1.3	0.0	0.0	0.7	0.6	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.6	0.3	0.0	0.3	0.3	0.0	1.0	0.6	0.0	0.6	2.5	0.0	0.0	0.0	
2100 (310 obs):																	19.7
1-2	3.9	0.3	0.7	2.9	5.5	2.2	0.3	0.0	1.0	0.0	0.3	1.0	2.3	0.3	0.3	0.3	
3-4	2.9	0.6	0.9	6.1	14.9	2.0	1.6	1.0	3.9	2.3	2.6	1.5	4.5	1.3	1.0	0.3	
5-6	0.0	0.7	0.7	1.0	1.9	0.7	0.7	0.3	0.9	0.6	0.0	0.3	0.0	0.3	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.6	0.3	0.3	0.0	0.0	0.3	0.0	0.6	0.7	0.0	0.7	0.0	0.0	
April:																	
0700 (299 obs):																	21.4
1-2	2.0	0.3	1.0	0.3	4.8	0.7	0.3	0.3	2.4	0.0	2.3	0.3	1.0	0.0	0.3	0.3	
3-4	5.7	0.7	4.0	0.3	9.0	4.0	3.3	1.0	5.3	1.0	1.7	2.4	4.0	0.7	1.0	0.7	
5-6	0.3	0.3	1.0	1.4	2.7	0.3	0.7	0.0	0.0	0.0	0.3	0.3	0.7	0.0	0.7	0.0	
≥ 7	0.7	0.0	0.7	0.7	1.3	0.4	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.3	
1300 (299 obs):																	10.0
1-2	1.0	0.0	0.0	0.7	0.3	0.4	0.0	0.0	1.6	0.0	0.7	0.3	0.3	0.3	0.4	0.0	
3-4	4.1	2.0	2.7	3.3	9.0	2.7	3.3	0.7	8.0	1.0	2.3	1.0	5.3	0.7	1.0	0.4	
5-6	0.3	1.0	0.7	1.3	5.7	2.0	1.7	0.7	1.7	0.3	0.3	0.3	3.1	0.0	0.3	1.0	
≥ 7	0.6	0.7	0.6	1.4	4.8	0.6	1.7	0.6	0.7	0.0	0.0	1.6	1.7	0.7	0.0	0.3	
2100 (300 obs):																	34.3
1-2	1.4	0.3	0.7	0.0	1.6	0.3	0.7	0.7	2.7	0.3	0.7	0.3	1.7	0.0	0.3	0.7	
3-4	2.6	1.4	2.0	2.7	8.4	4.7	6.3	0.6	5.7	1.0	1.7	0.6	4.4	0.6	0.6	1.3	
5-6	0.7	0.3	0.0	1.0	2.4	0.7	0.0	0.0	0.3	0.0	0.0	0.0	1.0	0.0	0.7	0.0	
≥ 7	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	
July:																	
0700 (310 obs):																	36.9
1-2	1.3	0.3	1.6	0.0	5.2	0.7	0.7	0.0	1.9	0.0	1.0	0.6	1.6	0.0	0.3	1.3	
3-4	3.3	1.6	2.6	4.2	7.4	0.9	0.9	1.0	4.6	1.6	3.9	2.3	5.2	0.6	1.3	0.6	
5-6	0.6	0.0	0.3	0.3	0.3	0.6	0.0	0.0	0.3	0.3	0.0	0.3	1.0	0.0	0.0	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	15.2
1-2	1.3	0.0	1.3	1.0	2.9	0.3	1.6	0.0	1.3	0.6	0.3	0.3	0.6	0.0	0.0	0.0	
3-4	6.5	1.6	2.9	2.6	10.5	5.5	3.6	4.5	10.0	1.0	2.9	0.7	2.6	1.3	1.0	0.6	
5-6	0.6	0.0	0.0	0.6	1.3	0.0	1.0	0.3	2.9	0.3	0.7	0.0	2.0	0.3	0.0	0.7	
≥ 7	1.3	0.0	0.0	0.3	0.6	0.0	0.3	0.0	0.3	0.0	0.3	0.3	0.3	0.3	0.0	0.6	
2100 (310 obs):																	63.1
1-2	1.3	0.0	0.3	0.3	2.6	0.3	1.0	1.0	3.9	1.0	0.3	0.0	0.0	0.0	0.0	0.3	
3-4	2.0	0.0	1.3	1.6	0.9	0.7	0.3	0.6	7.4	1.3	1.0	1.0	2.0	0.0	0.0	1.0	
5-6	0.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.3	0.0	0.3	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
October:																	
0700 (310 obs):																	30.1
1-2	0.3	0.6	1.3	1.0	6.8	1.0	1.6	0.3	1.6	0.0	0.7	0.7	0.6	0.0	0.3	0.0	
3-4	2.0	1.3	2.2	4.2	12.6	3.2	3.6	0.7	3.6	1.6	2.9	1.6	7.2	0.6	1.0	0.3	
5-6	0.3	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.6	0.0	0.3	0.0	0.3	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.3	0.6	0.0	0.3	0.3	
1300 (310 obs):																	11.0
1-2	1.6	0.0	0.3	0.0	1.3	0.3	0.6	0.0	2.6	0.0	0.3	0.0	0.6	0.3	0.0	0.0	
3-4	3.2	1.3	2.3	2.9	10.6	7.1	5.2	2.3	7.1	1.9	2.6	2.2	5.2	1.6	1.6	0.6	
5-6	0.7	0.0	0.0	0.3	2.9	2.6	4.2	0.3	1.0	0.0	0.3	0.7	1.3	1.0	0.3	0.7	
≥ 7	0.0	0.0	0.0	0.0	2.6	0.6	1.0	0.0	0.3	0.0	0.7	0.0	1.3	0.0	0.3	0.3	
2100 (310 obs):																	43.0
1-2	1.0	0.3	0.6	0.6	4.9	1.0	1.9	0.0	1.6	0.7	0.3	0.3	1.9	0.0	0.0	0.0	
3-4	3.6	0.7	1.3	2.6	9.4	3.5	2.9	0.3	3.9	0.3	1.6	0.0	4.2	0.7	0.6	1.6	
5-6	0.0	0.0	0.0	0.0	0.3	0.3	1.3	0.3	0.0	0.0	0.0	0.3	1.0	0.6	0.0	0.3	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
KAZAN' (7 years of record)																	
January:																	
0700 (248 obs):																	20.6
1-2	5.7	3.6	1.6	1.6	0.8	0.4	2.8	9.8	1.6	3.7	4.0	2.8	4.8	2.8	4.0	2.4	
3-4	0.0	0.4	1.2	0.0	0.4	1.2	2.0	6.6	1.6	2.8	0.8	1.2	0.8	0.4	1.6	0.0	
5-6	0.0	0.0	0.0	0.4	0.4	0.0	0.4	3.2	1.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (248 obs):																	8.1
1-2	3.6	2.0	2.4	2.4	0.4	2.4	0.4	9.7	8.1	3.3	4.5	6.1	4.9	2.4	4.4	2.8	
3-4	0.4	1.6	0.0	0.0	0.0	0.0	2.8	8.5	3.6	1.6	0.8	2.0	1.2	0.8	0.0	0.8	
5-6	0.0	0.0	0.0	0.4	0.0	0.0	0.8	1.6	0.8	2.4	1.2	0.4	0.4	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (248 obs):																	24.6
1-2	3.6	2.0	1.6	1.2	0.4	0.8	2.4	8.2	4.9	3.2	2.0	4.8	2.4	1.6	3.2	2.8	
3-4	0.8	0.8	1.6	0.0	0.0	0.8	1.6	7.8	1.2	3.3	1.2	0.8	0.8	0.8	0.0	0.8	
5-6	0.0	0.4	0.0	0.0	0.4	0.4	0.4	2.4	0.0	1.2	2.4	0.4	0.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
KAZAN' (Continued)																	
April:																	
0700 (239 obs):																	16.7
1-2	2.5	5.5	1.3	3.8	1.3	4.2	5.8	8.4	3.0	6.7	3.3	6.6	1.3	4.4	2.1	2.9	
3-4	0.0	0.4	0.8	0.4	0.4	0.0	1.3	5.9	0.4	2.1	0.4	2.1	0.4	0.4	0.8	0.4	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	0.8	0.9	1.3	0.0	0.4	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (240 obs):																	2.1
1-2	1.7	3.3	2.5	2.1	2.9	2.1	1.7	5.4	2.9	5.8	3.8	7.9	2.6	1.6	1.3	2.9	
3-4	0.4	3.3	2.1	0.8	0.0	2.1	1.2	6.7	2.1	2.9	3.3	8.3	1.2	2.6	0.0	0.9	
5-6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.4	1.2	2.1	1.7	1.2	0.8	0.0	0.4	0.0	
≥ 7	0.0	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (240 obs):																	31.3
1-2	2.9	5.9	1.2	2.5	0.8	2.9	2.1	7.0	3.0	4.2	2.1	3.0	2.1	2.9	2.1	2.5	
3-4	0.0	0.8	2.1	0.0	0.4	2.1	0.0	4.6	0.8	2.9	3.8	0.4	0.0	0.4	0.0	0.4	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
July:																	
0700 (248 obs):																	19.4
1-2	6.1	6.9	1.2	1.6	0.0	4.7	4.4	5.6	2.8	2.8	3.2	5.7	4.0	9.7	6.5	6.1	
3-4	0.4	0.8	0.8	0.0	0.8	0.8	0.4	0.4	0.8	0.8	0.4	0.4	0.4	0.0	0.0	0.8	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (246 obs):																	2.8
1-2	2.9	2.4	3.3	2.4	2.8	1.6	0.4	1.7	2.9	2.0	7.8	9.4	4.1	5.7	3.7	6.5	
3-4	0.4	1.2	1.6	1.7	2.1	0.8	0.4	1.2	0.8	3.3	2.0	8.5	2.4	1.2	3.2	2.4	
5-6	0.0	0.4	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	0.0	0.8	0.0	0.4	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	
2100 (248 obs):																	24.6
1-2	4.5	6.1	2.8	2.0	3.2	2.9	1.4	3.2	1.2	3.6	3.2	7.7	6.1	4.9	3.6	4.0	
3-4	0.0	0.8	0.4	2.0	1.2	1.6	0.0	0.8	0.8	0.4	0.0	0.4	1.6	1.6	0.4	0.0	
5-6	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
October:																	
0700 (248 obs):																	16.9
1-2	2.8	4.1	1.2	2.0	0.4	2.0	5.7	6.5	3.2	3.6	2.5	3.5	3.6	10.1	4.4	0.4	
3-4	0.4	0.8	0.0	0.0	0.8	0.4	0.8	3.2	0.8	4.1	4.4	2.0	0.0	2.8	1.2	1.2	
5-6	0.0	0.4	0.4	0.0	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (248 obs):																	2.8
1-2	2.4	2.0	2.0	0.8	0.4	1.2	2.0	2.8	2.4	4.4	7.7	11.7	3.3	4.9	4.4	2.8	
3-4	0.4	1.2	0.8	0.8	0.0	2.0	0.4	4.5	1.6	5.7	2.4	5.7	1.8	2.4	3.7	2.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.6	2.4	0.0	0.8	0.0	0.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	
2100 (248 obs):																	23.8
1-2	2.8	2.4	1.2	0.4	0.8	1.2	0.8	8.5	2.8	4.1	2.4	4.5	4.1	6.9	2.8	1.6	
3-4	1.2	0.8	1.2	2.4	0.4	1.2	0.3	2.0	2.0	2.8	3.7	1.6	1.6	0.4	0.4	2.0	
5-6	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4	0.8	0.4	0.8	0.4	0.0	0.0	1.2	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
KOLA (9 years of record)																	
January:																	
0700 (310 obs):																	15.2
1-2	0.3	0.0	0.3	0.0	0.0	0.3	1.0	0.3	8.7	2.9	12.7	0.0	0.7	0.3	0.0	0.3	
3-4	0.3	0.0	0.3	0.3	0.0	0.0	0.0	1.0	7.4	3.9	18.8	3.9	0.9	0.6	1.6	0.0	
5-6	0.6	0.0	0.7	0.0	0.0	0.0	0.0	0.6	4.2	1.6	4.1	1.3	0.0	0.7	1.0	0.3	
≥ 7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.9	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	12.3
1-2	0.3	0.3	1.0	0.0	0.3	0.3	0.0	1.0	8.1	4.5	15.5	1.3	1.0	0.0	0.3	0.3	
3-4	0.0	0.0	0.3	0.3	0.3	0.0	0.0	2.5	6.8	5.5	13.2	6.8	2.3	0.6	1.0	0.7	
5-6	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.4	1.6	1.9	4.3	0.6	0.3	1.3	0.6	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.7	0.0	0.0	
2100 (310 obs):																	17.7
1-2	0.0	0.0	0.3	0.3	0.0	0.3	0.3	0.3	5.5	4.5	15.2	2.2	1.7	0.0	0.7	0.3	
3-4	1.3	0.3	0.7	0.0	0.3	0.0	0.3	0.7	8.4	4.2	15.5	2.6	1.9	1.3	1.3	0.3	
5-6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3	2.0	3.2	1.0	0.3	0.3	0.3	0.0	
≥ 7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0	
April:																	
0700 (300 obs):																	17.3
1-2	0.7	1.3	0.3	0.7	1.4	0.3	0.0	2.0	3.7	4.0	15.6	1.6	0.7	0.3	1.0	1.0	
3-4	2.9	1.4	1.7	1.3	1.6	1.4	0.0	1.7	4.6	2.3	11.4	4.1	2.0	1.3	1.0	0.7	
5-6	0.7	1.3	0.3	0.0	1.0	0.0	0.3	0.0	0.4	0.0	1.0	1.0	1.0	0.4	0.3	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.0	
1300 (300 obs):																	12.3
1-2	3.3	0.7	0.6	1.3	0.3	0.7	0.3	1.0	3.4	3.4	10.0	0.4	1.7	0.7	0.3	0.6	
3-4	2.7	1.6	2.4	0.3	2.7	1.7	2.0	1.0	3.6	5.0	9.6	3.3	4.0	2.0	2.4	1.7	
5-6	1.4	0.7	0.0	0.7	0.3	0.3	0.0	0.0	1.0	0.7	3.0	0.6	2.0	0.7	0.3	0.0	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.3	0.3	0.0	0.0	
2100 (300 obs):																	30.3
1-2	1.4	1.1	1.7	0.7	1.3	0.7	1.0	1.6	4.0	2.6	9.3	2.4	1.6	1.3	0.0	1.0	
3-4	2.9	1.0	1.0	1.3	1.7	1.0	0.7	1.7	2.9	2.7	5.0	2.0	2.0	1.4	1.0	1.4	
5-6	0.7	0.6	0.3	0.0	0.0	0.3	0.0	0.0	1.4	1.0	1.0	0.3	1.4	0.3	0.0	0.0	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
KOLA (Continued)																	
July:																	
0700 (310 obs):																	5.2
1-2	2.9	1.9	1.3	0.0	1.9	1.0	1.0	0.7	3.9	0.9	10.6	1.0	1.9	0.6	1.7	1.9	
3-4	8.4	3.8	6.2	2.3	0.7	0.6	0.3	1.6	1.9	2.6	7.5	1.2	2.9	1.3	3.5	1.3	
5-6	2.6	4.9	1.3	0.3	0.0	0.0	0.0	0.3	0.0	0.0	1.6	0.7	0.0	0.0	0.9	0.0	
≥ 7	0.6	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	4.8
1-2	4.2	2.2	1.6	1.3	0.6	0.0	0.3	1.0	1.7	1.9	5.3	0.7	3.2	0.6	1.9	1.9	
3-4	9.3	5.5	3.6	0.6	3.9	1.0	0.7	1.3	1.6	2.0	5.4	2.9	2.6	1.6	2.0	3.9	
5-6	3.9	4.2	0.3	0.3	0.3	0.3	0.0	0.3	0.3	0.6	2.9	0.0	0.3	0.7	0.3	0.7	
≥ 7	0.7	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.0	0.0	0.0	
2100 (310 obs):																	11.6
1-2	6.1	2.2	3.3	3.8	1.9	0.7	1.0	1.9	4.5	2.0	2.3	2.6	2.9	0.3	1.9	1.9	
3-4	6.4	3.5	4.2	1.9	1.0	0.3	0.3	1.3	2.2	1.3	1.6	2.9	2.6	0.0	3.3	2.0	
5-6	3.2	2.7	1.9	0.4	0.0	0.3	0.0	0.0	1.0	0.9	0.0	0.0	0.0	0.3	0.3	1.3	
≥ 7	0.7	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
October:																	
0700 (310 obs):																	5.8
1-2	1.0	0.0	1.6	0.3	0.0	0.0	1.3	2.5	7.4	4.8	16.5	2.3	1.3	0.0	0.7	0.3	
3-4	0.6	0.0	0.3	1.0	0.0	0.0	0.6	1.7	9.7	6.5	13.5	7.1	2.9	1.0	1.6	1.0	
5-6	0.7	0.6	0.0	0.3	0.0	0.0	0.0	0.3	1.3	1.0	1.6	0.3	0.3	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	6.5
1-2	0.3	0.3	1.0	0.0	0.3	0.0	0.3	1.3	5.5	5.5	10.4	3.5	1.0	0.3	1.6	1.0	
3-4	1.0	1.0	0.3	0.7	0.3	0.0	0.3	1.3	5.8	5.2	20.3	6.8	3.8	1.0	2.0	0.9	
5-6	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.6	2.6	0.6	2.9	1.0	0.7	0.3	0.0	0.0	
≥ 7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.3	0.0	
2100 (310 obs):																	21.9
1-2	1.6	0.0	0.3	0.0	0.0	0.0	0.4	1.3	3.9	2.9	17.7	1.6	0.9	0.0	0.6	0.7	
3-4	0.9	0.3	0.3	0.3	0.0	0.0	0.6	0.3	5.2	2.3	14.9	2.9	3.0	1.3	2.3	0.3	
5-6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.2	0.3	2.9	1.3	0.3	0.6	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
KURSK (9 years of record)																	
January:																	
0700 (307 obs):																	1.3
1-2	1.0	1.0	2.3	0.6	1.6	0.7	4.5	0.3	2.3	1.0	3.6	1.6	4.9	1.6	3.9	1.4	
3-4	2.6	1.6	3.6	1.0	2.6	1.0	3.9	2.6	2.9	3.6	2.3	4.9	4.5	3.6	4.6	1.4	
5-6	0.0	0.0	1.0	0.7	1.0	0.9	1.0	1.0	1.0	1.3	1.6	4.6	1.9	2.6	0.0	0.2	
≥ 7	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (308 obs):																	0.0
1-2	1.0	0.7	1.9	1.9	1.3	1.0	2.0	1.9	2.3	0.0	1.3	1.9	1.6	1.0	1.9	1.0	
3-4	2.3	2.3	3.3	1.4	2.9	2.6	4.5	3.9	3.9	3.6	3.6	7.2	7.8	3.9	3.3	1.9	
5-6	0.3	0.3	0.6	0.6	1.0	0.3	1.0	0.0	1.3	1.3	0.9	4.2	1.3	3.9	0.0	1.3	
≥ 7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	
2100 (310 obs):																	0.3
1-2	1.9	0.6	3.2	1.9	1.3	1.0	3.9	1.9	1.3	1.0	2.0	0.6	3.9	1.6	3.2	0.6	
3-4	1.0	2.6	2.2	1.0	2.9	1.9	4.5	3.9	3.2	1.6	4.1	3.9	5.5	4.9	2.3	2.0	
5-6	0.0	0.7	1.0	0.3	0.3	0.3	1.3	1.0	1.0	1.3	2.3	3.9	3.2	1.9	2.2	0.0	
≥ 7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
April:																	
0700 (300 obs):																	1.0
1-2	0.7	2.0	5.0	1.4	3.0	2.0	5.3	1.3	3.3	1.0	2.0	1.7	3.4	1.0	3.0	0.7	
3-4	3.0	2.3	2.7	2.3	5.6	4.6	8.0	2.4	4.0	1.3	3.0	2.3	2.7	3.3	4.3	1.0	
5-6	0.6	0.7	1.0	1.0	1.4	1.4	1.0	0.0	0.0	0.0	0.0	0.3	0.6	0.7	0.4	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (300 obs):																	1.0
1-2	1.0	0.3	1.7	0.6	1.7	0.3	2.7	1.3	1.0	1.3	0.7	0.0	2.1	1.0	2.0	0.0	
3-4	3.4	2.0	2.3	1.7	5.0	3.7	7.0	1.7	5.0	3.0	1.6	4.0	4.3	3.6	2.3	3.0	
5-6	1.3	0.7	0.3	2.0	3.3	3.0	3.0	2.7	0.7	2.4	1.7	2.0	1.6	0.7	0.0	1.0	
≥ 7	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	
2100 (300 obs):																	0 3
1-2	3.3	1.3	3.0	1.7	4.0	1.0	3.3	1.3	3.0	1.0	4.0	2.1	3.3	1.3	2.0	1.0	
3-4	4.0	2.4	2.3	2.6	8.7	4.0	4.0	4.0	3.3	2.7	1.0	2.6	2.3	4.0	2.0	3.0	
5-6	0.4	0.0	1.0	1.0	3.0	1.0	0.7	0.0	0.0	0.6	0.0	0.0	0.7	0.4	0.7	0.7	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
July:																	
0700 (310 obs):																	0.0
1-2	3.2	1.6	7.1	4.2	5.2	4.2	5.8	1.6	3.5	2.2	2.9	2.9	3.5	3.5	2.3	1.6	
3-4	1.6	5.2	4.9	3.9	2.6	0.3	1.6	1.0	1.0	1.0	2.9	1.9	3.6	4.2	4.8	2.6	
5-6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	0 0
1-2	0.3	1.6	2.9	1.6	3.5	3.2	3.2	1.3	0.3	1.6	1.9	2.3	1.0	1.6	2.2	0.3	
3-4	2.9	2.9	3.2	3.5	3.6	4.2	2.6	1.6	1.9	3.2	2.6	3.9	8.4	7.1	5.2	2.6	
5-6	0.7	0.3	0.3	0.7	0.0	0.7	0.0	0.3	1.0	1.0	1.0	1.9	1.9	1.3	0.7	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (310 obs):																	0.3
1-2	2.9	3.9	4.8	1.9	2.9	2.6	3.9	1.9	1.0	1.9	2.6	1.3	6.5	4.5	3.9	1.6	
3-4	4.9	6.8	7.8	1.3	1.9	0.6	0,3	1.3	0.3	0.7	2.2	2.3	5.1	5.2	6.1	3.2	
5-6	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.6	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
KURSK (Continued)																	
October:																	
0700 (310 obs):																	1.0
1-2	1.6	2.3	2.9	1.3	2.9	2.3	4.2	1.6	3.8	1.9	4.5	3.5	5.1	2.9	1.6	0.3	
3-4	1.0	2.2	2.9	0.6	4.2	2.5	4.2	2.3	3.6	0.7	4.8	1.9	4.2	5.8	4.8	2.6	
5-6	0.3	0.0	0.3	0.7	1.0	0.7	0.3	0.3	0.0	0.0	1.3	0.4	1.0	1.0	0.4	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	0.3
1-2	0.6	0.7	2.3	1.3	0.6	0.3	2.6	1.0	1.3	0.3	2.0	1.3	3.2	0.7	1.6	0.9	
3-4	3.3	0.6	1.9	0.7	5.8	2.9	4.2	2.3	5.5	3.6	6.8	5.1	5.5	4.5	5.2	1.4	
5-6	0.6	0.3	0.6	1.6	1.0	2.3	1.6	0.9	0.3	1.6	1.6	1.3	2.9	1.9	0.9	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
2100 (310 obs):																	0.3
1-2	1.6	1.3	1.9	1.7	3.2	1.6	2.3	1.3	4.2	0.6	4.1	0.7	9.1	1.3	1.6	1.3	
3-4	2.6	0.9	1.6	0.9	4.9	2.9	5.5	1.0	3.6	2.9	4.9	4.8	5.5	2.6	4.5	2.6	
5-6	0.3	0.0	0.7	0.9	2.2	0.7	0.3	0.6	0.3	0.0	1.0	1.6	0.6	0.3	0.7	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MEZEN' (10 years of record)																	
January:																	
0700 (310 obs):																	15.8
1-2	2.7	0.3	0.6	1.3	0.6	1.0	4.5	7.8	5.8	1.3	3.5	0.6	1.3	0.0	0.3	1.0	
3-4	0.9	0.0	2.6	1.3	2.6	2.2	3.9	5.1	12.0	5.2	3.9	3.3	1.9	1.0	0.7	0.6	
5-6	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.6	1.7	0.3	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	
1300 (310 obs):																	8.4
1-2	2.2	0.7	0.3	0.9	2.6	2.2	3.9	5.5	4.5	1.2	1.0	1.9	1.6	0.6	1.0	1.0	
3-4	1.3	0.0	0.6	1.7	1.9	3.3	4.2	10.1	10.1	5.9	1.9	2.3	4.2	1.1	0.0	0.6	
5-6	0.0	0.3	0.4	0.0	0.0	0.6	0.6	0.3	1.6	1.0	0.6	0.6	2.3	0.9	0.9	0.0	
≥ 7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	
2100 (309 obs):																	22.4
1-2	0.6	0.3	1.0	1.4	1.6	1.3	2.6	6.5	8.1	1.6	2.3	1.3	0.9	0.6	0.7	0.3	
3-4	1.3	0.3	0.6	0.9	1.3	1.9	3.3	5.5	9.4	5.6	2.9	2.0	3.0	0.3	0.3	1.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	1.0	0.0	0.3	0.9	1.9	0.7	0.6	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	
April:																	
0700 (300 obs):																	12.4
1-2	1.0	0.3	1.3	1.6	0.7	2.0	4.7	6.0	2.3	1.0	2.7	1.0	2.0	1.0	1.0	0.3	
3-4	3.0	4.7	2.7	5.4	1.3	4.0	5.3	5.0	2.7	1.7	2.3	1.3	4.0	2.7	2.0	2.1	
5-6	2.3	1.0	1.3	0.3	0.3	0.0	0.0	0.0	0.7	0.0	0.0	0.3	0.3	0.3	0.0	1.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
1300 (300 obs):																	5.7
1-2	2.4	1.0	0.6	1.7	0.7	2.3	2.3	4.0	1.6	1.0	2.0	0.7	1.0	0.0	2.3	2.3	
3-4	3.0	1.3	4.7	2.3	1.3	4.1	3.1	5.0	6.4	2.7	4.7	1.0	3.0	2.6	4.3	4.0	
5-6	1.6	1.7	1.7	0.3	0.0	0.3	0.3	1.3	0.3	1.0	0.3	0.0	1.0	0.7	1.7	1.7	
≥ 7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	
2100 (300 obs):																	14.0
1-2	2.4	1.0	2.7	2.4	0.7	1.7	4.6	4.3	4.6	0.3	1.0	0.7	2.0	1.0	2.7	3.1	
3-4	3.9	3.0	7.3	3.3	1.3	2.3	2.7	4.7	3.4	1.4	2.0	1.6	2.0	2.4	3.0	1.6	
5-6	0.7	0.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	0.0	0.3	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	
July:																	
0700 (310 obs):																	5.8
1-2	2.9	2.9	1.9	1.3	1.9	2.0	8.4	5.2	2.9	0.3	1.3	1.0	0.9	2.2	2.6	1.6	
3-4	7.3	3.5	3.2	0.6	2.3	2.5	3.2	3.2	3.9	0.3	2.9	1.6	2.0	3.3	5.2	1.3	
5-6	2.2	1.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	1.6	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	
1300 (310 obs):																	4.8
1-2	1.6	0.6	2.0	1.3	0.6	1.3	3.6	1.9	0.9	1.0	1.6	1.6	2.3	0.9	3.5	1.6	
3-4	4.3	4.2	1.9	1.6	3.6	1.0	3.5	3.9	5.9	1.3	3.9	1.3	1.6	1.9	9.1	5.5	
5-6	1.9	1.0	0.3	0.6	0.6	0.0	0.0	0.0	0.3	0.3	0.0	1.0	0.9	2.4	2.3	1.3	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	
2100 (310 obs):																	7.4
1-2	6.2	5.8	5.4	1.3	4.2	4.9	2.3	1.0	2.0	2.3	0.6	0.6	0.3	1.6	3.2	6.4	
3-4	5.5	4.2	3.9	1.3	2.9	1.9	0.9	0.6	0.9	0.6	1.7	1.0	1.0	2.3	3.9	3.9	
5-6	0.6	0.3	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.3	2.3	1.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
October:																	
0700 (310 obs):																	7.4
1-2	4.6	1.9	1.0	1.2	0.3	2.3	2.9	4.5	3.2	0.9	1.6	1.6	2.6	0.9	1.3	2.0	
3-4	1.3	2.3	2.9	1.3	2.3	0.3	4.8	8.8	9.7	4.9	4.2	1.9	2.6	2.0	0.6	1.3	
5-6	0.3	0.6	0.0	1.0	0.0	0.0	1.0	0.3	0.6	0.3	1.0	0.0	1.6	0.0	1.0	0.3	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
1300 (310 obs):																	8.1
1-2	3.2	0.6	0.6	0.3	0.7	1.3	1.6	2.3	1.9	2.9	1.0	0.3	1.7	1.6	0.7	1.3	
3-4	4.6	1.0	2.3	1.0	0.3	1.6	4.9	7.1	11.6	6.5	4.5	3.5	3.5	1.3	2.2	1.9	
5-6	0.6	1.3	0.3	1.0	0.0	0.6	0.0	0.6	1.0	0.9	0.6	0.7	2.2	0.3	0.3	1.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	
2100 (310 obs):																	23.4
1-2	2.9	1.0	1.9	1.0	0.7	1.3	2.3	5.8	6.5	0.6	3.9	0.3	0.7	0.0	2.6	1.0	
3-4	2.2	1.0	2.0	1.3	0.6	0.7	1.9	3.9	11.6	3.6	5.8	0.3	1.9	0.3	1.6	1.3	
5-6	0.7	0.6	0.0	0.3	0.0	0.3	0.0	0.0	0.3	1.0	0.0	0.0	0.3	0.0	0.3	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
MOSKVA (8 years of record)																	
January:																	
0700 (278 obs):																	11.9
1-2	5.4	1.1	1.8	1.8	4.3	2.8	9.0	2.5	8.6	3.3	4.7	3.6	3.1	1.5	6.5	1.4	
3-4	1.1	0.3	1.4	0.7	0.7	1.8	2.2	0.7	4.0	2.5	2.9	2.1	0.7	0.3	2.9	1.1	
5-6	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (279 obs):																	4.7
1-2	6.5	1.4	1.5	1.4	2.8	5.8	5.4	4.3	12.5	6.5	3.2	1.4	3.6	2.5	4.3	5.0	
3-4	2.1	1.1	0.7	0.0	0.7	1.0	3.3	0.7	3.3	1.0	2.2	1.5	3.6	1.4	1.4	1.1	
5-6	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (279 obs):																	9.7
1-2	4.7	1.4	2.2	0.7	2.5	3.2	7.2	3.2	10.4	2.8	2.8	2.5	2.1	1.4	3.6	4.3	
3-4	1.8	1.1	0.7	0.0	1.8	1.0	2.9	0.7	3.6	4.7	1.8	2.9	2.5	1.5	2.9	2.2	
5-6	0.0	0.0	0.3	0.0	0.0	0.8	1.0	0.0	0.3	0.0	0.4	0.0	0.4	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
April:																	
0700 (270 obs):																	10.4
1-2	6.3	1.5	3.7	3.0	4.1	6.3	2.9	1.5	12.2	3.7	4.4	2.2	4.5	3.5	3.7	4.8	
3-4	1.5	0.0	1.1	0.3	2.2	0.7	0.4	1.1	0.8	0.7	1.5	0.4	2.9	1.5	2.6	1.9	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (270 obs):																	1.8
1-2	4.5	1.1	3.0	2.6	7.7	2.6	2.9	3.3	8.9	2.6	4.1	1.1	1.9	2.6	4.4	3.7	
3-4	1.1	1.1	1.1	1.5	3.0	1.5	2.3	1.5	1.9	4.8	4.0	0.8	4.1	0.3	1.9	3.3	
5-6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	1.1	0.4	0.3	0.7	0.4	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4	0.0	
2100 (270 obs):																	20.7
1-2	3.7	1.1	4.5	1.1	5.2	3.4	1.8	5.5	8.9	3.0	4.8	3.7	1.8	3.0	3.3	2.9	
3-4	1.5	1.1	0.0	1.1	1.8	1.1	1.5	0.8	1.5	2.2	0.4	1.1	1.5	0.7	1.5	1.5	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.4	0.0	0.0	0.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	
July:																	
0700 (279 obs):																	14.0
1-2	7.3	3.2	4.6	2.9	5.0	2.2	3.9	1.1	6.8	5.0	1.8	2.1	6.8	3.6	5.7	7.5	
3-4	1.4	0.4	1.8	0.3	0.7	0.3	0.0	0.0	0.4	1.1	1.1	1.1	2.5	1.1	1.1	1.8	
5-6	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (279 obs):																	2.9
1-2	2.9	2.9	2.5	1.8	3.2	2.2	1.8	1.4	3.6	4.3	2.5	2.2	3.2	0.7	5.0	4.6	
3-4	2.8	2.5	2.5	0.0	1.8	1.4	2.8	1.8	3.3	8.2	3.2	3.6	5.8	3.9	3.6	2.6	
5-6	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.3	0.4	0.0	0.7	0.0	0.0	0.4	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
2100 (279 obs):																	25.1
1-2	1.4	0.7	0.3	0.7	2.1	1.1	0.3	0.0	2.9	0.7	2.5	1.4	1.5	1.1	2.5	4.6	
3-4	4.7	1.5	2.2	2.8	1.8	1.8	1.5	1.1	4.3	5.0	3.5	1.5	3.2	2.2	5.7	4.0	
5-6	0.0	0.0	0.7	0.4	0.7	0.0	0.0	0.0	0.3	0.4	0.4	0.0	0.7	0.7	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
October:																	
0700 (279 obs):																	10.4
1-2	2.8	2.8	1.8	1.5	4.6	3.6	2.5	2.2	10.8	6.0	5.4	3.6	8.6	1.4	5.4	3.6	
3-4	0.7	1.1	0.0	0.7	0.0	1.4	1.1	0.7	2.8	2.6	2.9	2.2	1.4	0.4	0.7	2.2	
5-6	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.0	0.3	
≥ 7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
1300 (278 obs):																	4.0
1-2	2.5	2.9	1.4	1.1	2.9	2.2	3.2	2.5	7.2	4.3	4.6	4.0	6.5	1.5	2.1	3.2	
3-4	2.5	0.7	0.4	0.3	1.1	1.4	1.8	0.7	3.9	7.3	2.9	3.6	4.3	2.9	3.3	1.8	
5-6	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	
2100 (279 obs):																	14.0
1-2	3.6	1.8	0.7	0.0	2.5	0.7	3.6	2.9	5.0	7.5	5.7	2.5	5.4	1.1	3.2	1.4	
3-4	2.5	0.0	0.4	0.3	1.1	1.5	2.1	2.2	2.5	3.9	4.3	3.2	2.5	3.6	2.5	2.5	
5-6	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.1	0.7	0.0	0.3	0.0	0.0	0.4	
≥ 7	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ODESSA (9 years of record)																	
January:																	
0700 (296 obs):																	12.8
1-2	2.4	2.7	3.8	1.7	2.0	0.7	0.6	1.0	0.6	0.6	1.0	1.4	1.0	2.7	1.0	1.3	
3-4	4.1	4.1	2.7	2.8	2.1	1.7	1.0	1.0	0.3	1.7	0.6	3.1	3.4	2.7	4.0	2.1	
5-6	0.3	4.7	2.7	2.4	2.4	1.0	0.3	1.4	0.3	0.6	1.4	0.0	0.3	0.6	0.6	2.3	
≥ 7	0.3	0.3	0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.3	
1300 (281 obs):																	7.5
1-2	2.8	4.6	3.9	0.8	1.1	0.8	1.1	0.8	0.0	1.5	1.5	1.4	2.8	1.8	2.9	1.8	
3-4	3.9	3.6	2.1	2.1	4.3	4.3	0.8	2.5	0.8	2.1	1.4	1.4	3.6	2.2	2.9	2.5	
5-6	2.2	2.5	1.8	1.4	1.1	0.0	1.1	0.0	0.4	0.7	0.4	0.4	0.0	1.4	0.7	3.9	
≥ 7	0.8	0.0	0.4	0.4	1.1	0.0	0.7	0.0	0.4	0.0	0.0	0.0	0.4	0.4	0.8	0.4	
2100 (287 obs):																	11.5
1-2	2.7	3.1	4.1	0.6	1.3	1.4	1.7	0.7	0.6	1.0	1.3	1.0	1.7	1.3	2.0	1.3	
3-4	3.8	4.5	2.7	0.7	2.4	3.5	1.0	0.7	1.7	0.7	2.7	1.3	2.4	3.8	2.0	3.1	
5-6	1.0	3.4	2.1	1.7	2.0	1.4	1.0	0.7	0.7	0.3	0.7	1.0	0.3	1.3	0.6	1.3	
≥ 7	0.3	0.0	1.0	0.0	0.6	0.3	0.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
ODESSA (Continued)																	
April:																	
0700 (297 obs):																	11.1
1-2	2.0	1.7	1.0	0.6	1.0	1.3	3.3	3.0	0.4	1.0	1.7	0.6	1.0	2.0	3.4	1.6	
3-4	4.0	2.7	3.0	2.3	2.3	2.7	2.6	2.7	2.7	3.4	1.3	0.3	0.3	3.7	2.7	4.4	
5-6	1.0	2.0	2.0	1.7	1.3	0.7	0.7	1.0	1.0	2.0	0.7	0.0	0.7	1.0	1.0	1.0	
≧ 7	0.0	0.3	0.3	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.6	
1300 (282 obs):																	5.7
1-2	1.1	0.8	0.8	0.7	2.1	3.9	2.1	4.2	0.4	0.4	0.0	0.0	0.4	0.0	0.0	1.4	
3-4	2.8	2.5	1.5	1.1	2.5	3.2	5.3	14.2	5.3	2.8	1.4	0.0	1.4	1.8	1.0	2.8	
5-6	0.3	1.7	1.0	1.0	1.7	0.0	0.6	8.9	1.8	0.3	0.3	0.3	1.0	1.3	1.3	2.5	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	
2100 (289 obs):																	10.7
1-2	2.4	2.4	1.0	0.7	0.6	2.0	1.7	2.4	3.8	1.0	0.7	1.7	0.7	1.0	2.1	0.3	
3-4	2.0	4.2	2.0	2.1	2.1	0.3	3.1	6.6	5.2	5.6	6.6	1.4	1.0	0.6	1.7	2.4	
5-6	1.0	1.4	0.3	0.3	0.3	0.3	0.0	2.0	3.1	2.1	0.0	0.6	0.3	0.3	0.3	1.0	
≧ 7	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
July:																	
0700 (306 obs):																	17.0
1-2	3.6	4.2	2.0	1.4	1.7	1.3	1.0	1.7	1.4	0.7	2.0	0.7	2.3	3.6	5.5	4.2	
3-4	5.2	3.6	5.2	1.0	0.3	0.6	0.3	0.3	0.0	2.0	0.7	1.3	2.0	3.9	6.8	5.3	
5-6	0.6	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	1.9	2.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.3	
1300 (286 obs):																	8.4
1-2	1.4	1.4	1.3	1.0	2.8	2.8	3.8	4.5	2.8	1.0	0.0	0.0	0.0	0.3	0.3	1.4	
3-4	3.1	2.4	1.7	0.3	0.6	1.7	5.2	11.5	3.1	1.7	0.3	0.7	1.0	1.7	2.4	3.8	
5-6	2.7	1.7	0.3	0.3	0.0	0.3	0.7	5.2	1.3	2.1	0.7	0.0	0.3	2.0	0.7	2.4	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.3	0.6	
2100 (289 obs):																	9.3
1-2	2.4	1.7	1.0	1.0	0.7	1.0	1.7	3.1	2.8	2.4	2.7	3.5	1.7	2.1	3.5	1.7	
3-4	2.4	3.1	5.8	0.3	0.6	0.3	1.7	4.5	4.2	4.5	6.3	1.7	3.1	4.1	2.4	3.1	
5-6	1.0	0.6	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.7	1.4	0.3	0.7	1.7	2.1	1.4	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	
October:																	
0700 (305 obs):																	12.5
1-2	2.6	0.7	0.7	0.6	1.3	1.7	1.6	1.4	1.9	1.6	3.0	1.6	0.3	1.9	1.6	1.7	
3-4	2.6	3.6	4.2	2.0	2.3	2.6	0.3	3.9	1.3	3.9	4.3	1.3	1.6	2.9	4.0	2.3	
5-6	1.3	2.0	2.3	1.7	0.7	0.6	0.3	1.7	0.9	0.3	1.0	0.0	0.3	1.3	1.3	1.0	
≧ 7	1.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.3	0.6	
1300 (303 obs):																	6.6
1-2	1.6	1.0	2.3	1.0	1.6	3.3	2.0	2.3	0.0	1.0	1.0	1.0	0.6	0.3	0.6	2.0	
3-4	2.0	2.3	1.4	2.3	5.6	3.3	3.3	4.9	3.0	2.7	2.3	2.4	1.0	1.7	2.7	2.0	
5-6	1.0	1.6	1.0	1.3	2.0	0.3	1.3	6.0	1.7	1.7	2.0	0.7	1.0	0.6	1.0	2.3	
≧ 7	0.0	0.0	0.7	0.3	0.0	0.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.3	0.3	1.0	
2100 (301 obs):																	12.6
1-2	0.6	0.7	1.7	0.7	1.3	1.3	4.0	1.3	4.0	3.3	2.3	0.6	1.0	1.0	1.0	1.3	
3-4	2.4	2.3	3.0	2.4	1.3	2.4	2.0	4.6	4.4	4.3	3.4	2.0	1.3	3.0	1.0	3.0	
5-6	1.0	2.7	1.4	0.7	1.0	0.7	0.7	0.7	2.3	1.3	1.3	0.3	1.0	0.0	0.3	1.0	
≧ 7	0.3	0.0	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.3	
PINSK (10 years of record)																	
January:																	
0900 (266 obs):																	3.0
1-2	4.6	0.0	2.7	1.5	6.7	2.3	4.9	1.9	6.4	0.4	3.7	3.8	3.4	1.2	3.0	1.5	
3-4	1.2	1.1	0.8	1.5	7.2	4.1	4.9	1.1	1.1	0.8	2.7	3.4	4.9	0.4	1.5	0.8	
5-6	0.0	0.0	0.8	0.4	1.5	0.4	0.8	0.4	0.8	1.2	1.2	0.8	1.2	0.8	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.8	0.0	0.4	0.0	0.0	0.0	0.4	0.0	
1500 (253 obs):																	1.6
1-2	2.0	1.6	1.2	2.0	1.6	3.6	4.4	4.8	4.0	1.6	2.4	2.0	5.9	0.8	1.6	4.7	
3-4	1.6	0.8	1.2	0.4	6.0	4.8	5.2	2.8	1.2	1.6	2.4	1.6	5.5	0.8	2.0	0.8	
5-6	0.0	0.0	0.4	1.2	3.2	1.6	0.8	0.4	0.4	0.0	0.4	2.4	2.0	1.2	0.8	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.0	0.0	
2100 (286 obs):																	1.7
1-2	4.2	1.0	4.1	2.0	6.3	2.4	7.0	4.2	5.6	1.7	1.4	1.4	6.9	1.3	2.1	3.8	
3-4	0.7	0.7	0.3	0.3	5.9	5.2	3.1	0.6	1.0	1.4	1.3	1.3	4.5	0.6	1.7	1.0	
5-6	0.0	0.0	0.0	1.0	2.0	0.7	1.4	0.7	0.0	0.3	1.0	0.6	1.3	1.0	0.3	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	
April:																	
0900 (256 obs):																	3.5
1-2	4.7	2.8	7.0	4.3	4.7	2.3	0.8	1.2	3.1	0.8	1.2	0.8	4.3	2.0	3.5	2.0	
3-4	0.8	0.0	1.2	0.4	3.1	2.8	2.4	2.7	4.7	2.0	2.7	1.2	4.0	4.3	3.9	0.8	
5-6	0.0	0.0	0.0	0.0	0.8	2.8	2.7	0.4	0.8	0.8	0.0	1.2	2.0	0.0	0.8	0.4	
≧ 7	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	
1500 (245 obs):																	2.0
1-2	3.7	2.0	2.4	3.7	5.3	3.3	0.4	1.6	2.8	0.8	1.6	0.8	3.6	0.8	5.7	2.0	
3-4	0.8	1.2	0.0	0.8	4.1	1.6	4.5	2.8	1.6	3.2	2.8	3.2	3.6	4.1	3.7	1.2	
5-6	0.0	0.0	0.0	0.0	1.2	1.6	1.6	1.2	1.2	0.4	0.4	2.0	2.8	1.6	0.8	0.4	
≧ 7	0.0	0.0	0.4	0.0	0.0	0.0	0.4	0.8	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	
2100 (257 obs):																	11.7
1-2	6.1	3.5	1.6	2.7	6.2	2.4	3.5	1.6	3.2	1.2	1.2	2.4	5.8	2.4	7.0	2.7	
3-4	1.6	0.0	0.8	0.4	3.2	2.4	4.3	0.8	1.2	1.2	1.2	1.6	4.7	0.4	3.1	0.4	
5-6	0.0	0.0	0.0	0.0	0.4	2.0	2.4	0.8	0.4	0.0	0.0	0.4	0.4	0.8	0.0	0.0	
≧ 7	0.0	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
PINSK (Continued)																	
July:																	
0900 (258 obs):																	8.9
1-2	5.8	5.5	3.9	0.4	5.1	2.3	1.6	2.0	1.2	0.8	2.3	3.1	8.1	2.3	7.0	3.1	
3-4	2.0	0.4	0.8	1.6	0.0	0.8	2.4	2.0	2.7	0.8	1.2	5.1	5.4	2.0	3.5	2.0	
5-6	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4	1.2	1.2	0.4	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	
1500 (235 obs):																	4.7
1-2	6.9	3.8	3.9	1.8	4.3	1.3	2.6	0.4	3.0	0.9	1.7	1.3	5.6	1.7	8.1	1.3	
3-4	1.7	0.9	1.3	0.0	0.9	0.0	2.5	0.8	3.0	1.7	2.6	4.3	7.6	2.1	6.4	3.8	
5-6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3	0.0	0.4	0.0	1.3	1.3	0.4	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	
2100 (210 obs):																	0.0
1-2	10.0	4.8	3.9	2.0	3.8	2.4	2.4	1.0	1.9	1.5	4.8	3.4	16.2	5.3	10.4	4.3	
3-4	1.0	0.0	0.0	0.5	1.0	0.0	0.0	1.4	0.0	0.0	0.5	1.4	7.2	1.9	2.9	1.4	
5-6	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	
≥ 7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
October:																	
0900 (246 obs):																	6.1
1-2	2.4	0.8	2.4	2.4	1.6	2.4	6.5	2.4	5.3	1.6	5.3	2.4	4.0	2.4	0.8	2.4	
3-4	0.8	0.4	1.6	0.4	3.6	2.4	3.2	0.8	3.3	2.0	6.1	5.7	5.7	2.0	1.6	0.4	
5-6	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.4	0.0	1.2	1.2	1.6	2.0	0.4	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	
1500 (230 obs):																	2.6
1-2	1.3	1.3	1.7	2.6	2.6	1.7	4.3	1.7	3.5	1.7	3.0	2.1	5.2	0.8	2.2	1.8	
3-4	0.4	0.4	1.8	1.7	1.7	0.9	3.4	3.0	3.9	4.4	1.7	2.6	10.0	1.8	2.6	0.8	
5-6	0.0	0.0	0.0	0.0	0.9	0.9	2.2	0.0	1.7	0.0	3.5	3.9	1.7	0.4	0.4	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	1.3	0.8	0.0	0.0	0.0	
2100 (225 obs):																	0.0
1-2	3.1	0.9	4.9	1.3	5.8	3.6	7.1	2.7	5.3	4.5	5.8	2.7	7.1	3.5	5.8	1.7	
3-4	0.9	0.0	0.9	0.4	2.2	1.8	3.6	1.3	2.2	1.3	3.1	3.1	4.9	0.0	0.8	0.0	
5-6	0.0	0.0	0.4	0.0	1.3	0.4	0.0	0.0	0.4	0.0	0.4	0.0	1.3	0.4	0.4	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.8	0.0	0.8	0.0	0.0	0.0	
RIGA (9 years of record)																	
January:																	
0900 (263 obs):																	0.0
1-2	0.4	0.8	1.2	3.4	2.3	2.3	0.8	3.0	1.6	1.9	2.7	2.3	1.6	0.4	0.0	0.0	
3-4	0.0	0.4	1.9	1.5	3.0	4.2	6.0	8.7	6.4	6.4	4.6	3.8	2.7	0.8	0.4	0.0	
5-6	0.0	0.4	0.8	0.0	0.0	1.9	1.5	6.0	2.7	3.1	0.4	0.4	0.8	1.9	0.4	1.2	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	0.0	0.4	0.0	0.4	0.4	0.0	0.4	
1500 (245 obs):																	0.0
1-2	0.0	0.4	0.8	0.4	2.4	1.2	2.4	2.4	3.2	0.4	2.0	2.0	0.8	1.2	0.0	0.4	
3-4	0.4	0.4	0.4	0.8	2.4	6.1	5.8	6.5	5.3	7.7	4.9	5.3	1.2	1.2	0.8	0.4	
5-6	0.8	0.4	0.4	0.0	0.0	2.0	2.8	6.1	0.4	6.5	1.6	0.8	1.6	1.6	0.8	0.4	
≥ 7	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.4	0.8	0.4	
2100 (258 obs):																	0.4
1-2	0.4	0.0	1.6	2.0	2.0	0.8	1.6	2.0	2.3	1.2	1.6	2.0	0.8	0.4	0.4	0.0	
3-4	1.6	1.2	0.8	0.8	1.6	4.6	5.9	9.7	11.2	5.0	5.4	3.1	3.1	0.8	0.0	0.0	
5-6	0.8	0.0	0.8	0.0	0.4	1.2	2.7	3.9	3.1	4.7	1.6	1.2	1.6	0.8	0.0	0.0	
≥ 7	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.8	0.0	0.4	0.0	0.0	1.6	0.4	
April:																	
0900 (244 obs):																	0.4
1-2	1.2	3.7	0.8	1.6	0.4	2.4	4.5	4.1	2.8	1.2	2.9	1.6	0.4	0.4	2.0	0.4	
3-4	2.8	2.8	1.2	1.2	1.6	7.0	3.7	5.4	1.2	4.1	2.9	2.4	2.8	1.6	2.0	2.8	
5-6	1.2	0.0	0.4	0.4	0.0	1.6	1.2	1.6	0.4	3.2	1.6	0.8	0.8	3.6	1.6	2.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	
1500 (244 obs):																	0.0
1-2	0.8	1.2	0.4	0.4	0.0	0.0	0.4	2.4	2.8	0.8	1.6	0.4	0.4	0.0	2.4	1.2	
3-4	3.7	2.8	0.8	3.6	1.2	2.0	4.5	4.9	1.2	4.5	3.7	1.6	0.8	2.4	3.2	6.6	
5-6	2.0	0.0	0.8	0.0	0.0	2.5	1.2	1.6	0.4	3.7	2.0	4.1	0.4	2.9	3.3	6.1	
≥ 7	0.4	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.8	2.4	0.4	
2100 (228 obs):																	0.9
1-2	2.2	3.1	2.7	1.7	0.8	2.2	3.1	2.2	1.7	0.4	1.8	0.9	0.0	1.3	2.2	3.5	
3-4	6.6	1.7	2.2	1.3	2.6	4.4	4.8	3.5	1.3	3.5	3.5	2.7	2.2	2.2	4.0	3.9	
5-6	1.7	1.3	0.4	0.4	0.0	1.3	1.3	0.9	0.4	0.4	0.4	1.8	0.8	0.4	2.6	1.8	
≥ 7	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	0.4	
July:																	
0900 (249 obs):																	0.4
1-2	1.2	1.6	1.6	1.6	2.4	1.2	6.4	1.6	1.6	4.4	2.4	3.6	2.0	2.0	5.2	2.4	
3-4	2.8	1.6	1.6	0.4	1.2	4.4	3.6	3.2	3.6	3.6	4.0	4.4	2.0	6.0	3.2	2.8	
5-6	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.8	1.6	1.6	0.8	0.8	1.2	1.6	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	
1500 (227 obs):																	0.0
1-2	2.2	2.2	1.3	0.8	0.0	0.9	1.3	1.3	0.0	3.0	2.2	1.3	1.3	2.2	0.4	3.5	
3-4	5.7	1.8	0.9	0.9	0.8	1.8	3.1	5.3	1.8	2.2	3.5	4.4	3.5	2.7	7.0	8.4	
5-6	2.6	0.0	0.0	0.0	0.0	1.3	0.4	0.0	1.3	0.9	2.2	0.4	1.3	1.3	2.7	3.5	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.9	0.0	0.9	
2100 (238 obs):																	0.8
1-2	5.9	4.7	2.9	3.0	2.1	0.4	1.7	2.1	1.6	1.2	2.5	2.6	3.8	1.7	3.3	4.2	
3-4	3.8	2.5	2.5	1.6	2.6	0.8	3.0	2.9	0.4	1.7	3.3	5.0	2.1	0.8	5.0	6.9	
5-6	0.8	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.8	0.0	2.1	0.4	1.3	4.2	0.4	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
RIGA (Continued)																	
October:																	
0900 (234 obs):																	0.0
1-2	0.4	1.3	0.9	2.6	0.4	0.8	2.1	1.3	4.3	2.2	3.0	2.2	0.4	0.8	0.4	0.4	
3-4	1.3	1.3	1.7	2.5	1.7	2.6	4.7	7.6	4.2	6.0	7.3	8.5	1.3	0.9	0.9	0.4	
5-6	0.9	0.4	0.0	0.4	0.0	1.3	0.4	3.0	0.9	5.9	2.6	0.9	0.0	0.4	2.2	0.4	
≥ 7	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.4	0.8	0.4	0.0	
1500 (229 obs):																	0.0
1-2	0.0	2.2	1.3	1.7	1.8	1.3	0.8	0.8	1.3	2.2	1.8	0.9	0.9	0.9	0.8	0.9	
3-4	0.8	0.8	3.0	1.3	2.2	1.8	1.7	7.4	3.5	6.2	5.6	5.2	2.2	1.7	0.8	3.1	
5-6	0.0	0.4	0.4	0.4	0.4	0.4	2.6	3.5	1.7	3.9	2.6	4.4	0.9	2.2	1.7	2.1	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	1.3	0.4	0.0	0.0	0.8	0.4	0.4	
2100 (228 obs):																	0.4
1-2	1.3	0.4	1.7	1.3	2.7	0.4	0.8	3.1	1.3	3.1	1.8	2.2	0.0	0.4	0.9	0.8	
3-4	0.4	0.4	1.3	3.1	2.2	2.7	4.4	7.0	8.7	7.9	8.3	6.6	2.2	1.3	0.0	1.3	
5-6	0.8	0.0	1.3	0.0	0.4	0.0	0.9	2.2	1.8	1.8	3.1	0.9	0.0	0.4	1.7	1.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0	0.4	0.0	0.4	0.4	
ROSTOV-NA-DONU (8 years of record)																	
January:																	
0900 (310 obs):																	3.2
1-2	0.6	1.3	3.3	3.0	2.9	1.9	1.6	1.3	1.9	0.6	1.3	1.2	1.0	0.3	1.6	0.9	
3-4	2.3	0.6	4.2	4.2	6.1	4.2	2.0	1.6	1.0	1.0	2.6	1.6	3.6	2.3	2.6	2.6	
5-6	0.6	0.7	4.8	6.1	4.9	2.9	1.9	0.0	0.0	0.3	0.0	1.7	1.9	1.6	0.0	0.0	
≥ 7	0.0	0.0	0.3	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	
1500 (310 obs):																	1.0
1-2	0.7	0.6	1.3	2.6	2.9	4.2	1.3	1.3	1.3	0.3	1.6	0.0	1.6	0.7	3.2	1.3	
3-4	0.9	1.0	4.5	5.8	5.8	4.8	1.6	2.6	0.6	1.0	1.6	2.9	3.9	3.9	2.6	3.2	
5-6	0.0	0.7	2.6	5.5	5.8	2.6	1.6	0.0	0.0	0.0	0.0	1.6	1.6	1.6	0.7	0.3	
≥ 7	0.0	0.0	0.6	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	
2100 (310 obs):																	1.0
1-2	1.3	0.6	2.9	1.9	2.3	1.9	1.9	1.0	0.3	1.3	1.3	1.0	1.0	2.6	3.6	0.3	
3-4	1.0	2.6	2.9	4.2	6.1	7.1	3.6	1.9	1.0	1.3	1.3	3.5	1.2	1.9	3.9	1.3	
5-6	0.3	0.3	4.9	5.5	7.1	2.3	0.6	0.0	0.0	0.0	0.6	0.7	2.6	1.3	0.6	0.3	
≥ 7	0.0	0.0	0.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
April:																	
0900 (300 obs):																	5.0
1-2	3.7	1.3	2.0	1.7	3.0	2.0	1.0	1.3	0.3	2.3	2.0	2.7	2.0	3.4	2.0	1.0	
3-4	2.3	3.3	4.3	8.3	8.0	2.7	4.0	0.7	1.6	1.4	2.3	3.6	1.0	0.7	3.0	2.0	
5-6	0.3	0.7	0.7	3.7	3.3	1.0	0.3	0.0	0.7	0.0	0.7	0.4	1.0	0.3	0.0	0.7	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	
1500 (300 obs):																	0.3
1-2	0.3	0.0	0.7	1.0	2.4	2.7	2.7	1.3	1.3	1.3	1.3	1.0	1.3	1.4	1.3	1.0	
3-4	1.1	1.7	3.6	5.6	9.3	4.7	4.0	2.7	0.7	3.0	2.3	4.3	3.3	3.3	1.7	1.7	
5-6	0.3	0.3	1.7	6.0	4.3	2.0	0.3	0.0	0.0	1.0	0.7	5.7	0.7	0.0	0.7	0.6	
≥ 7	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.0	
2100 (300 obs):																	5.7
1-2	1.3	0.6	2.0	2.0	3.0	3.3	2.0	1.0	1.0	0.3	0.3	1.7	5.0	2.7	2.7	0.6	
3-4	1.7	4.3	8.7	5.7	7.7	3.4	2.3	0.3	0.7	2.1	3.3	4.0	3.7	1.6	2.3	2.0	
5-6	0.0	0.4	1.0	3.7	2.3	0.3	0.0	0.0	0.0	0.3	0.4	0.3	1.3	0.0	0.0	0.7	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	
July:																	
0900 (310 obs):																	6.5
1-2	3.8	3.5	2.9	3.2	4.5	2.2	1.6	2.5	3.2	1.6	3.9	1.6	3.3	3.2	5.2	4.6	
3-4	3.9	3.3	4.5	4.8	5.2	2.3	2.6	1.0	0.3	1.0	2.2	1.0	1.9	0.3	2.6	1.6	
5-6	1.0	0.0	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.0	0.0	0.6	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1500 (310 obs):																	0.3
1-2	0.6	1.3	0.3	1.6	1.3	1.6	2.0	2.0	2.2	0.7	2.3	0.3	1.9	1.0	1.6	1.0	
3-4	4.6	1.9	1.6	6.4	5.1	7.1	3.2	2.2	2.0	2.9	6.2	5.1	7.2	2.3	4.5	2.2	
5-6	0.6	0.3	0.7	2.0	1.0	0.7	0.0	0.0	0.3	0.6	2.8	2.0	0.9	0.6	0.0	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	
2100 (310 obs):																	3.2
1-2	2.3	1.3	2.9	4.2	2.9	1.3	2.3	2.6	1.0	2.2	1.9	2.6	8.3	1.9	2.9	2.0	
3-4	4.5	5.5	6.5	2.9	2.6	2.9	0.3	0.6	0.3	2.6	4.2	2.9	6.5	2.0	4.8	3.2	
5-6	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
October:																	
0900 (310 obs):																	7.1
1-2	2.6	2.9	3.6	4.5	4.2	3.9	2.0	1.3	1.3	1.0	0.6	1.6	1.6	2.2	2.6	2.6	
3-4	1.6	1.3	2.9	7.5	12.9	4.2	2.3	1.6	1.9	0.3	1.3	0.3	2.3	2.3	2.2	2.6	
5-6	0.6	0.0	0.3	1.6	1.9	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1500 (310 obs):																	0.3
1-2	0.9	1.6	1.9	1.6	3.6	2.6	2.2	1.3	1.3	1.9	1.3	1.6	0.7	0.0	1.6	1.9	
3-4	1.7	1.7	1.0	4.5	13.9	6.8	3.6	2.6	1.9	1.0	2.9	2.3	3.5	4.8	5.2	1.0	
5-6	0.3	0.3	0.3	0.7	3.2	2.6	1.6	0.3	0.0	1.0	0.6	1.9	0.6	1.3	0.6	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (310 obs):																	4.2
1-2	2.3	1.9	0.0	4.5	6.7	2.9	1.6	1.3	3.0	0.7	1.0	2.6	2.0	1.4	1.9	2.3	
3-4	2.2	1.6	4.2	6.4	10.1	5.5	2.6	1.3	0.9	1.6	2.2	0.6	2.2	2.2	2.9	3.6	
5-6	0.0	0.0	0.3	1.3	3.2	1.0	1.9	0.0	0.0	0.0	0.3	0.7	0.0	0.3	0.0	0.6	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
UMAN' (9 years of record)																	
January:																	
0700 (309 obs):																	21.7
1-2	5.5	0.0	4.2	1.0	1.6	0.6	6.5	0.6	4.8	0.0	3.2	1.0	2.9	1.0	2.6	1.3	
3-4	3.0	1.0	3.0	0.6	2.0	2.0	3.6	0.0	1.3	0.6	2.9	0.3	4.2	3.6	4.6	0.3	
5-6	0.3	0.0	0.6	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	2.6	0.3	1.3	0.0	
≥ 7	0.3	0.0	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.0	
1300 (310 obs):																	7.7
1-2	5.8	1.0	3.8	1.0	3.3	0.7	4.8	1.0	3.9	1.3	4.2	0.6	5.2	1.0	3.9	1.0	
3-4	3.3	0.6	3.9	0.3	3.5	1.3	3.2	0.0	3.2	1.3	1.9	1.3	6.7	1.0	5.8	1.3	
5-6	1.6	0.0	0.7	0.3	0.0	0.3	1.0	0.0	0.0	0.0	0.0	0.0	3.3	0.6	1.6	0.3	
≥ 7	0.3	0.0	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.6	0.0	
2100 (310 obs):																	23.9
1-2	5.5	0.0	7.1	0.6	3.5	0.7	5.8	0.6	2.5	0.7	2.3	0.3	5.2	0.3	4.8	0.7	
3-4	1.6	0.0	2.3	1.3	2.3	0.6	2.0	0.0	2.3	0.0	1.9	0.4	6.4	2.2	3.6	0.3	
5-6	1.0	0.0	0.6	0.3	0.0	0.0	0.6	0.0	0.0	0.3	0.0	0.3	1.6	0.4	1.0	0.3	
≥ 7	0.3	0.3	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	
April:																	
0700 (300 obs):																	16.1
1-2	4.3	0.7	4.4	2.0	6.7	1.3	5.0	0.0	3.7	0.7	0.9	1.6	3.0	1.3	3.6	1.0	
3-4	4.3	1.0	4.0	1.0	5.3	0.0	2.7	0.7	1.0	0.0	1.4	0.7	6.0	1.0	7.4	1.4	
5-6	0.7	0.0	0.3	0.3	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.4	1.0	0.3	
≥ 7	0.7	0.6	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
1300 (300 obs):																	2.3
1-2	2.3	1.0	5.0	0.6	3.4	0.3	2.0	0.0	2.7	1.0	2.3	0.0	3.1	0.3	2.3	0.7	
3-4	4.0	1.0	4.6	2.4	8.0	2.0	6.7	0.7	4.6	0.3	2.4	1.0	8.6	1.7	5.4	2.0	
5-6	0.7	0.0	1.7	0.3	1.7	0.0	0.6	0.0	1.0	0.4	0.6	0.7	2.0	0.7	3.0	0.0	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.3	0.6	
2100 (300 obs):																	24.9
1-2	9.0	1.0	7.0	0.0	3.3	1.0	5.7	0.0	3.3	0.7	2.3	0.3	5.4	1.0	6.7	0.0	
3-4	2.7	0.4	3.0	0.4	4.4	0.0	2.6	0.3	3.0	0.0	0.0	0.0	2.0	0.3	3.0	0.3	
5-6	0.7	0.3	0.7	0.3	1.0	0.0	0.7	0.0	0.7	0.0	0.0	0.0	0.3	0.0	1.0	0.0	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
July:																	
0700 (310 obs):																	33.9
1-2	5.9	0.7	3.6	1.0	3.6	0.0	2.9	0.6	2.3	0.3	2.6	0.3	3.2	2.9	9.0	3.6	
3-4	3.8	0.3	1.6	0.3	0.6	0.0	0.3	0.0	0.6	0.0	0.3	0.0	3.9	1.3	6.8	1.6	
5-6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
1300 (310 obs):																	11.9
1-2	5.2	0.0	5.2	2.0	4.2	0.3	0.9	0.3	4.8	0.7	4.8	0.0	5.5	1.9	7.5	1.0	
3-4	5.1	1.0	2.9	0.3	1.0	0.0	1.0	0.3	3.3	0.6	2.3	1.3	6.1	0.7	8.7	2.5	
5-6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3	0.6	3.2	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	
2100 (310 obs):																	60.7
1-2	5.2	0.3	2.3	0.6	2.6	0.0	1.3	0.0	1.0	0.0	0.0	0.3	4.8	2.0	7.7	1.6	
3-4	1.3	0.3	0.6	0.0	0.6	0.0	0.0	0.0	1.3	0.0	0.3	0.3	0.7	0.3	2.6	1.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
October:																	
0700 (310 obs):																	40.4
1-2	3.2	1.0	2.9	0.6	4.9	0.6	3.6	0.6	3.2	0.6	2.9	0.0	4.5	1.6	5.6	0.7	
3-4	2.0	0.3	0.3	1.3	2.2	0.0	1.6	0.0	2.3	0.4	0.6	0.0	2.6	2.2	3.3	0.6	
5-6	0.3	0.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.3	0.0	
≥ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
1300 (310 obs):																	5.8
1-2	3.2	0.0	3.5	0.6	7.7	0.7	7.4	1.6	4.2	0.3	4.8	0.7	3.9	1.3	4.5	0.0	
3-4	1.9	0.3	1.3	1.7	7.5	1.6	3.2	0.3	5.1	0.7	2.6	0.6	5.8	1.9	7.1	0.7	
5-6	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.3	1.7	0.6	
≥ 7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	
2100 (310 obs):																	43.0
1-2	3.9	1.9	2.3	0.3	7.1	1.0	1.6	0.3	1.9	0.0	2.3	0.3	5.8	1.9	5.8	0.0	
3-4	1.0	0.0	0.3	1.0	2.9	0.0	0.3	0.7	4.2	0.3	0.6	0.0	1.9	1.0	3.6	0.3	
5-6	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	
URYUPINSK (9 years of record)																	
January:																	
0700 (309 obs):																	13.9
1-2	5.1	1.7	2.6	1.3	3.6	1.0	3.3	2.3	4.8	1.3	3.6	1.6	2.6	1.0	2.2	1.3	
3-4	1.7	0.6	1.6	0.0	3.2	1.9	7.1	1.9	2.9	1.0	3.2	1.3	2.3	0.0	3.3	1.3	
5-6	0.0	0.0	0.3	0.0	1.0	0.7	3.2	1.0	0.7	0.0	1.3	1.0	1.3	0.3	0.3	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.3	0.3	0.6	0.0	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.0	
1300 (310 obs):																	9.7
1-2	3.5	1.3	2.2	0.7	2.6	1.6	1.9	1.9	3.5	0.3	2.6	1.3	3.2	0.7	2.9	1.0	
3-4	2.3	1.0	1.0	0.9	3.2	3.9	6.5	2.3	3.9	1.3	3.8	3.2	1.3	0.9	3.9	1.9	
5-6	0.0	0.0	0.0	0.0	1.6	2.6	4.9	1.0	1.0	0.3	0.7	0.7	1.6	0.3	0.6	0.6	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.6	0.0	0.7	0.0	0.0	0.0	0.0	0.0	
2100 (309 obs):																	15.2
1-2	4.2	2.6	1.0	0.3	2.8	1.9	4.9	1.9	1.9	0.3	2.9	0.3	2.9	0.3	3.3	1.9	
3-4	2.6	0.3	0.6	0.7	2.3	3.0	9.1	1.0	3.6	2.9	1.3	1.6	1.3	0.7	2.9	2.3	
5-6	0.0	0.0	0.0	0.0	1.0	0.3	4.5	0.0	2.0	0.0	0.7	0.7	1.0	0.3	0.3	0.3	
≥ 7	0.0	0.0	0.0	0.0	0.6	0.0	0.6	0.0	0.3	0.0	0.3	0.0	0.3	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
URYUPINSK (Continued)																	
April:																	
0700 (298 obs):																	12.8
1-2	2.4	1.0	4.0	2.1	2.0	1.7	2.0	2.0	2.7	1.4	4.6	1.0	1.3	0.7	3.4	1.3	
3-4	1.3	1.0	4.1	3.0	3.0	5.4	3.8	2.4	2.3	1.3	1.4	1.7	3.3	0.3	2.7	2.1	
5-6	0.0	0.0	0.3	0.0	1.7	1.0	3.0	0.6	0.7	0.3	0.7	0.0	1.4	0.3	0.3	1.0	
≧ 7	0.0	0.0	0.0	0.3	0.3	0.3	0.3	1.0	0.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	
1300 (300 obs):																	1.3
1-2	2.0	1.0	1.7	0.7	0.0	1.0	0.6	1.0	1.0	1.0	1.3	2.4	1.3	1.0	0.3	1.3	
3-4	3.0	2.0	5.3	5.0	3.3	3.3	3.7	1.7	2.7	3.6	2.7	1.3	2.0	0.7	5.0	1.7	
5-6	0.0	0.3	0.7	1.3	3.4	3.4	2.0	3.0	2.7	0.7	1.3	1.0	2.4	0.3	0.7	1.0	
≧ 7	0.0	0.0	0.0	0.3	1.7	1.0	1.7	2.0	0.6	1.0	0.0	0.3	1.0	0.0	0.3	0.0	
2100 (300 obs):																	13.3
1-2	1.7	1.7	4.0	2.0	4.3	2.7	4.0	1.7	3.3	0.6	3.0	2.3	2.3	0.4	4.4	2.0	
3-4	1.6	0.6	1.7	1.7	4.7	3.3	6.0	1.0	2.0	1.4	1.0	1.1	1.7	0.0	2.0	2.3	
5-6	0.0	0.0	0.3	0.0	1.7	3.7	1.3	0.7	0.7	1.0	0.0	0.3	0.7	0.0	0.3	0.7	
≧ 7	0.0	0.0	0.3	0.0	0.0	0.3	0.7	0.6	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0.0	
July:																	
0700 (310 obs):																	24.2
1-2	7.1	0.6	2.3	1.3	1.6	1.0	2.3	2.9	6.2	1.6	2.3	1.6	9.1	2.0	6.1	2.7	
3-4	2.6	0.3	1.6	0.3	0.6	0.3	1.2	0.0	2.9	0.3	2.6	0.3	3.9	0.3	2.6	0.6	
5-6	0.3	0.4	0.0	0.0	0.0	0.0	1.0	0.0	0.3	0.3	0.6	0.0	0.6	0.0	1.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
1300 (310 obs):																	8.4
1-2	2.0	1.0	1.3	0.4	1.6	1.0	3.2	1.3	4.8	0.0	0.7	0.0	3.9	1.6	4.5	1.0	
3-4	4.2	0.3	3.2	0.3	3.2	0.3	5.2	1.6	3.9	1.9	4.5	0.0	8.0	1.0	6.1	2.9	
5-6	0.0	0.3	0.7	0.0	0.0	0.0	2.0	0.0	1.3	1.3	1.9	1.0	2.3	0.3	2.3	0.3	
≧ 7	0.3	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.3	0.6	0.3	0.6	0.0	0.0	0.0	
2100 (309 obs):																	31.4
1-2	5.5	2.0	3.2	0.3	2.6	0.3	3.6	1.0	4.2	1.3	2.2	1.6	10.1	1.0	3.5	2.0	
3-4	3.2	0.6	1.0	0.0	2.9	0.0	2.3	0.6	1.0	0.6	2.3	1.0	2.6	0.0	3.3	0.3	
5-6	0.0	0.3	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
October:																	
0700 (310 obs):																	18.4
1-2	2.5	1.3	1.3	0.3	1.0	1.9	7.8	2.9	6.5	4.8	1.3	1.6	3.2	1.3	2.6	1.6	
3-4	2.3	0.6	1.3	0.7	1.9	1.6	3.2	2.6	3.0	1.6	3.9	2.3	3.2	0.3	2.3	0.7	
5-6	0.0	0.0	0.3	0.3	0.0	1.0	1.3	0.3	0.3	0.0	1.9	0.0	0.7	0.0	0.3	0.3	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (307 obs):																	2.3
1-2	0.3	0.0	1.0	0.7	0.6	0.6	1.3	0.6	2.3	2.3	3.9	1.3	1.6	0.7	1.3	1.0	
3-4	3.0	1.0	2.3	0.3	0.7	2.3	4.5	5.9	5.2	2.6	6.5	2.3	7.2	0.6	2.3	3.6	
5-6	0.3	0.0	0.0	0.3	1.0	0.7	4.2	2.3	2.3	1.3	2.0	2.0	1.3	0.7	1.6	0.0	
≧ 7	0.0	0.0	0.3	0.0	0.3	1.4	1.7	0.6	0.6	0.6	0.3	0.6	1.6	0.0	0.0	0.0	
2100 (310 obs):																	18.4
1-2	1.6	1.0	1.6	1.0	0.7	1.9	5.8	4.2	6.8	2.9	5.8	2.0	2.6	1.6	3.3	1.3	
3-4	1.6	0.6	0.7	0.3	0.6	4.2	4.2	3.8	1.3	2.2	1.3	0.6	2.9	1.0	1.9	1.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.3	2.3	0.7	0.6	0.7	0.3	0.3	0.3	0.0	1.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.0	0.0	1.3	0.0	0.3	0.0	
VELIKIY USTYUG (5 years of record)																	
January:																	
0700 (132 obs):																	9.1
1-2	2.3	3.0	3.8	0.0	4.6	0.0	3.1	1.5	3.8	3.0	7.6	5.3	2.3	3.1	2.3	2.3	
3-4	2.3	0.8	0.0	0.0	0.8	0.8	5.3	0.8	6.9	6.0	2.3	5.3	2.3	2.3	0.0	0.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	1.6	0.0	0.0	1.6	1.5	0.0	0.0	1.6	
≧ 7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (140 obs):																	5.7
1-2	3.6	4.3	4.3	0.0	2.1	2.1	2.1	1.4	6.4	4.3	6.4	2.1	2.1	0.7	3.5	0.0	
3-4	0.7	0.7	0.0	0.0	0.7	1.4	3.4	2.8	7.1	2.8	9.3	4.3	2.8	2.8	0.7	0.7	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.4	0.0	0.7	0.7	0.0	0.7	0.7	0.7	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.0	0.0	0.0	0.0	
1900 (161 obs):																	7.5
1-2	7.4	5.0	1.2	2.5	1.8	1.8	1.9	0.0	4.4	2.5	9.3	2.5	3.1	0.6	0.0	0.6	
3-4	0.0	0.6	1.9	0.6	0.0	1.2	2.6	1.2	6.8	4.4	11.8	5.0	4.3	1.8	0.0	1.2	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	1.8	0.0	1.2	0.6	0.0	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
April:																	
0700 (163 obs):																	11.7
1-2	2.4	1.8	2.4	3.1	1.8	1.2	1.8	1.2	5.6	4.3	9.8	4.9	6.8	0.6	1.2	1.2	
3-4	1.2	0.0	2.4	0.6	1.2	0.0	3.7	1.2	4.9	3.7	5.5	1.2	1.8	1.8	1.8	1.8	
5-6	0.0	0.6	0.6	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.6	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	
1300 (164 obs):																	2.4
1-2	1.2	3.6	3.6	1.2	0.6	0.6	3.6	1.8	4.8	3.6	3.6	1.2	4.9	1.2	0.6	0.0	
3-4	1.8	2.4	2.4	0.0	1.8	1.2	7.3	1.2	7.4	4.2	6.7	4.2	3.0	3.0	2.4	1.8	
5-6	0.6	0.0	0.6	0.0	0.0	0.0	1.2	0.0	1.2	0.0	1.8	1.2	0.6	0.0	0.0	0.6	
≧ 7	0.0	0.6	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	
1900 (158 obs):																	8.9
1-2	3.8	1.2	1.9	3.8	0.6	1.3	3.8	1.3	6.4	3.1	8.8	5.7	3.8	1.3	2.5	1.9	
3-4	0.6	2.6	0.6	0.6	1.2	0.0	2.6	1.2	3.8	5.7	7.6	4.5	1.3	0.6	2.5	1.9	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.6	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
VELIKIY USTYUG (Continued)																	
July:																	
0700 (156 obs):																	3.2
1-2	1.9	4.5	2.6	0.6	4.5	0.6	4.5	5.8	4.5	6.4	10.9	6.4	12.2	3.2	3.2	1.2	
3-4	2.5	0.6	1.2	1.3	0.6	0.0	1.3	0.6	1.3	0.6	2.6	2.6	1.3	0.0	2.6	2.6	
5-6	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	
1300 (160 obs):																	0.6
1-2	2.5	1.3	6.9	4.4	1.2	1.9	6.9	2.5	8.1	1.9	6.9	2.5	6.3	2.5	3.1	1.2	
3-4	1.3	2.6	0.0	2.5	1.3	0.6	3.8	1.3	6.3	0.6	5.0	3.1	4.4	0.6	2.5	1.9	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	
≧ 7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	
1900 (155 obs):																	7.1
1-2	6.4	2.5	3.2	2.9	3.8	1.9	6.4	4.5	7.8	4.5	5.8	5.8	4.5	1.9	4.8	3.2	
3-4	0.6	0.0	1.9	0.0	0.0	0.0	0.6	0.6	1.3	1.3	3.2	2.6	0.6	1.3	2.5	2.6	
5-6	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	
October:																	
0700 (138 obs):																	4.3
1-2	2.8	3.6	2.1	0.7	0.0	0.7	0.7	2.1	5.0	5.1	11.3	4.3	2.9	2.9	1.4	1.4	
3-4	0.7	0.7	2.1	0.7	2.1	0.7	3.6	2.1	5.1	3.6	5.8	9.4	3.6	0.0	2.1	0.7	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (139 obs):																	1.4
1-2	1.4	1.4	2.1	2.1	2.1	3.6	0.7	0.0	6.5	5.0	8.7	4.3	2.2	0.0	3.6	1.4	
3-4	0.7	0.7	3.6	0.7	3.6	0.7	0.7	1.4	5.1	4.4	11.5	4.4	5.1	2.0	2.2	0.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.7	0.7	2.2	0.0	0.7	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	
1900 (147 obs):																	3.4
1-2	2.1	2.0	2.1	0.0	1.4	0.7	3.4	1.4	11.6	4.8	10.2	3.4	3.4	4.1	4.0	2.8	
3-4	0.0	1.4	0.7	0.7	2.8	0.7	2.1	1.4	4.1	2.1	8.8	2.7	4.1	0.7	2.0	0.7	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.7	0.7	0.7	0.0	0.0	0.7	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
VYSHNIY VOLOCHËK (9 years of record)																	
January:																	
0700 (310 obs):																	5.5
1-2	5.2	0.7	1.6	0.0	3.9	0.0	12.6	1.0	9.7	0.0	11.9	0.0	5.8	0.0	4.2	0.3	
3-4	2.3	0.3	0.0	0.0	0.0	0.0	6.1	1.3	5.5	0.6	4.8	0.3	4.8	0.7	2.6	0.0	
5-6	0.6	0.3	0.0	0.0	0.0	0.0	0.7	0.3	2.2	0.0	1.0	0.0	1.3	0.3	1.6	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	3.5
1-2	2.9	0.0	1.6	0.0	2.6	0.7	11.3	1.6	10.0	1.3	9.9	0.0	6.8	0.0	6.7	0.3	
3-4	2.9	0.6	0.3	0.0	0.0	0.0	4.2	2.3	6.5	0.0	4.9	0.7	4.6	0.6	3.9	0.0	
5-6	0.3	0.0	0.0	0.0	0.0	0.0	1.3	0.3	1.6	0.3	1.0	0.0	2.2	0.0	2.3	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (310 obs):																	4.8
1-2	5.5	0.7	1.3	0.0	1.6	0.6	12.0	2.2	9.4	0.6	9.3	0.7	8.4	0.0	5.2	0.3	
3-4	1.6	0.3	1.0	0.0	0.0	0.0	5.8	2.3	4.8	0.0	4.5	0.3	4.2	1.0	2.9	0.7	
5-6	0.3	0.0	0.0	0.0	0.0	0.4	1.6	0.3	1.6	0.0	1.0	0.0	2.2	0.0	0.6	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
April:																	
0700 (300 obs):																	9.3
1-2	4.0	0.0	5.0	1.3	7.0	0.0	18.3	0.3	6.3	0.0	8.3	0.0	3.0	0.7	2.6	0.0	
3-4	1.7	0.0	3.3	1.0	1.7	0.4	7.7	1.7	4.7	0.6	3.7	0.0	2.0	0.3	1.7	0.0	
5-6	0.0	0.0	0.4	0.0	0.0	0.0	2.0	0.0	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (300 obs):																	3.3
1-2	4.3	0.0	6.3	0.3	3.3	0.0	7.7	0.0	3.7	0.0	5.7	0.0	2.7	0.0	4.3	0.3	
3-4	3.7	0.3	4.3	1.0	1.0	0.3	14.0	2.3	10.0	0.3	4.6	0.0	2.7	0.7	3.0	0.0	
5-6	0.3	0.0	0.4	0.7	0.0	0.0	3.7	0.4	3.0	0.0	0.4	0.0	0.3	0.0	0.7	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (300 obs):																	12.3
1-2	5.7	0.0	9.3	0.4	7.0	0.0	13.6	0.7	8.3	0.0	5.7	0.0	5.4	0.7	4.0	0.0	
3-4	0.6	0.0	0.4	1.0	1.0	0.0	7.7	1.3	8.0	0.0	1.0	0.0	1.3	0.0	1.7	0.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
July:																	
0700 (309 obs):																	14.9
1-2	7.2	0.3	4.5	1.9	4.9	0.6	9.7	0.7	3.2	0.3	13.6	0.6	10.4	0.3	10.4	0.0	
3-4	0.6	0.0	1.0	0.0	0.0	0.0	2.6	0.0	2.3	0.0	3.9	0.7	1.9	0.0	3.2	0.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	4.2
1-2	10.0	0.3	5.9	1.6	3.3	1.0	4.1	1.3	5.2	0.0	7.2	0.0	6.8	1.6	7.1	0.3	
3-4	3.3	0.0	1.9	0.0	1.3	0.3	2.6	0.3	5.8	0.0	7.4	0.6	7.7	0.0	5.8	0.0	
5-6	0.6	0.0	0.0	0.0	0.6	0.0	0.7	0.0	0.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (310 obs):																	19.4
1-2	9.0	1.6	7.4	1.0	3.6	0.3	10.6	0.6	6.4	1.6	10.0	1.0	9.4	1.0	7.7	0.3	
3-4	0.7	0.0	0.3	0.3	0.3	0.0	1.6	0.4	0.0	0.0	1.3	0.0	1.9	0.0	1.0	0.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
≧ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE V - 28 (Continued)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
VYSHNIY VOLOCHËK (Continued)																	
October:																	
0700 (310 obs):																	4.2
1-2	4.5	0.3	5.5	0.0	4.5	0.0	12.6	1.0	11.6	0.7	12.6	0.4	4.5	0.6	3.6	0.0	
3-4	2.0	0.0	1.6	0.0	0.3	0.0	4.8	0.3	6.1	0.0	6.8	0.0	3.9	0.6	3.5	0.0	
5-6	0.3	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.7	1.3	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1300 (310 obs):																	3.5
1-2	2.3	0.0	5.5	0.0	1.6	0.0	7.4	0.0	10.3	0.6	9.1	0.0	3.5	0.0	6.8	0.3	
3-4	3.9	1.0	1.6	0.0	1.3	0.0	5.2	1.3	10.3	1.4	9.6	0.3	3.2	0.3	4.2	0.3	
5-6	0.3	0.0	0.3	0.0	0.0	0.0	0.6	0.0	0.4	0.3	0.7	0.0	1.7	0.0	0.9	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2100 (310 obs):																	7.7
1-2	3.2	1.0	4.8	0.0	4.5	0.0	13.2	0.7	11.7	0.6	10.0	0.6	5.8	0.7	5.1	0.0	
3-4	1.3	0.6	2.9	0.0	0.7	0.0	1.0	0.3	8.3	1.7	3.3	1.3	3.2	0.3	1.7	0.0	
5-6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.6	0.0	0.0	0.0	0.3	0.0	
≥ 7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

E. Upper-air wind

Upper air wind roses giving percentage frequency and average velocity of winds from each of 16 points of the compass are shown in FIGURES V-16 to V-30.

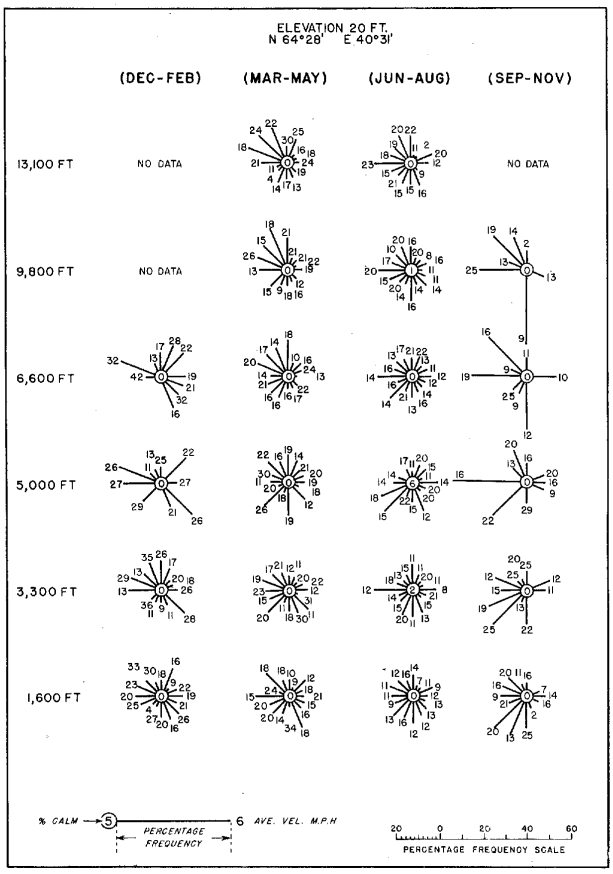


FIGURE V-16. *Upper-air wind roses for Arkhangel'sk.*

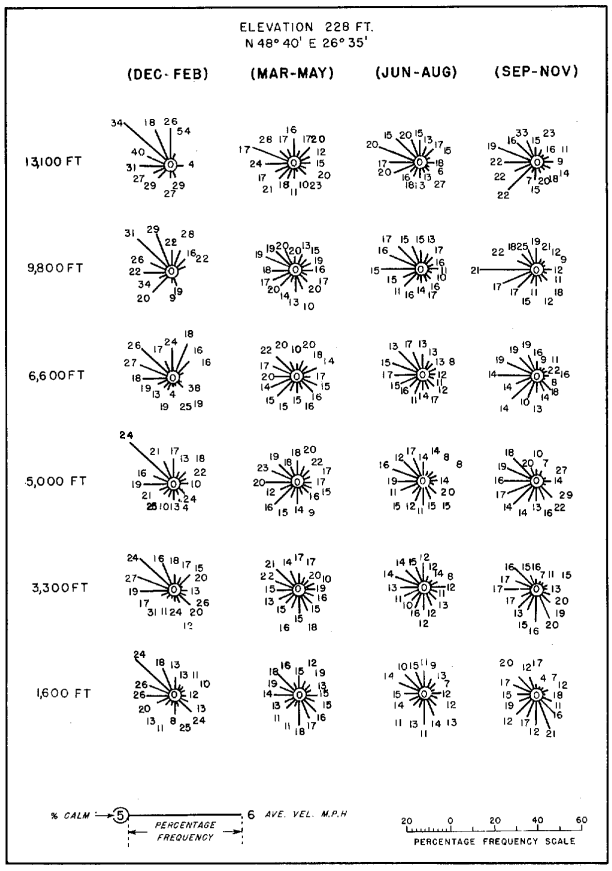


FIGURE V-17. *Upper-air wind roses for Kamenets-Podol'skiy.*

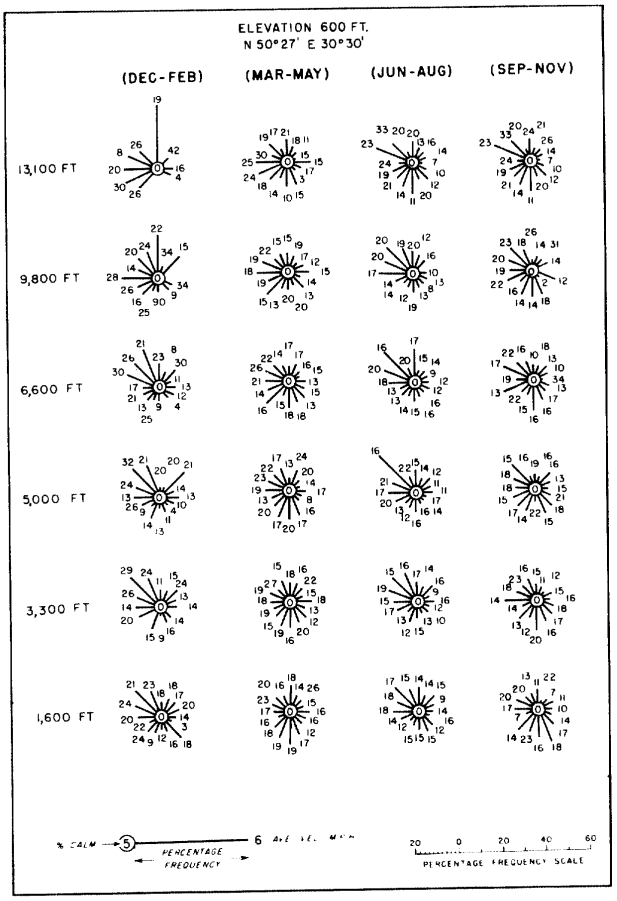


FIGURE V-18. *Upper-air wind roses for Kiyev.*

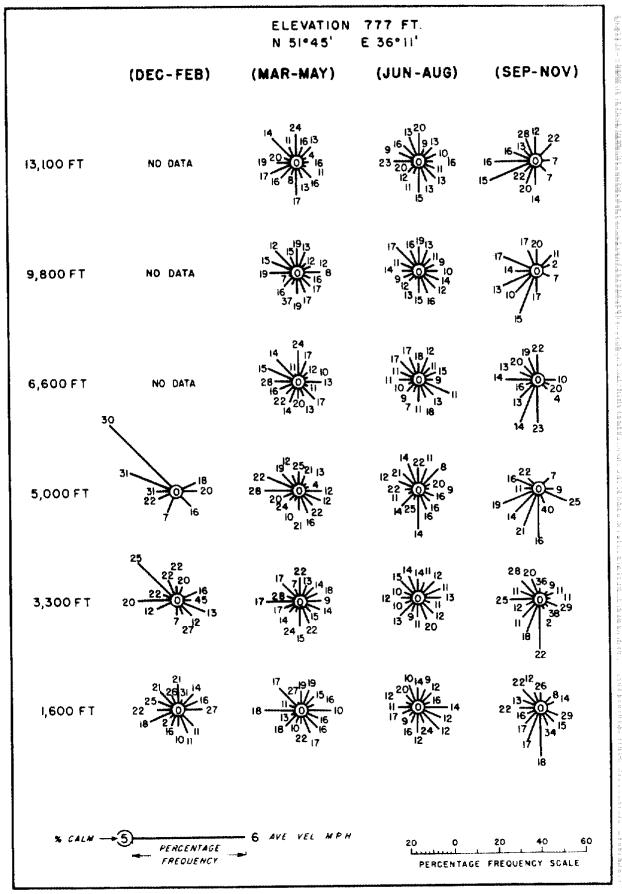


FIGURE V-20. *Upper-air wind roses for Kursk.*

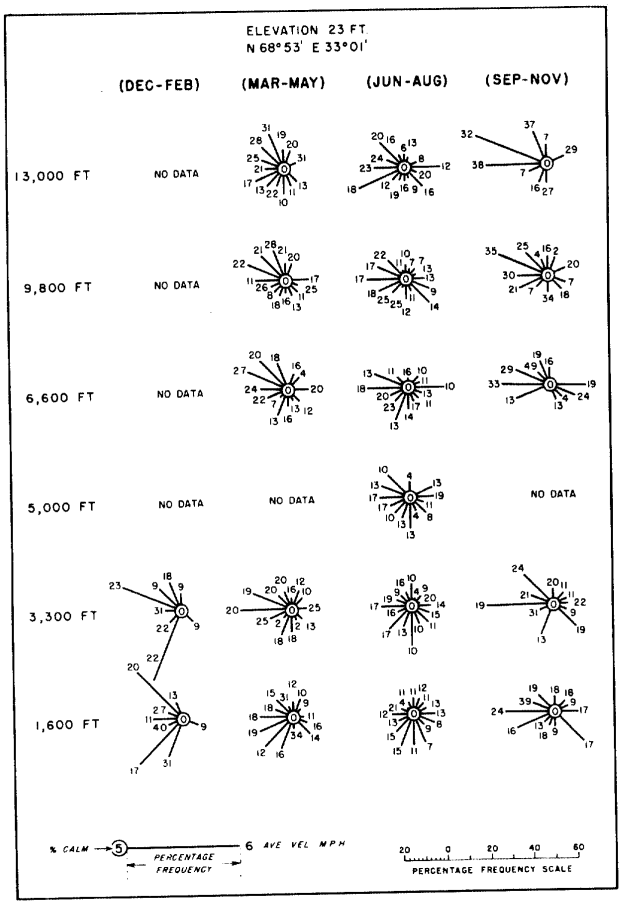


FIGURE V-19. *Upper-air wind roses for Kaliningrad.*

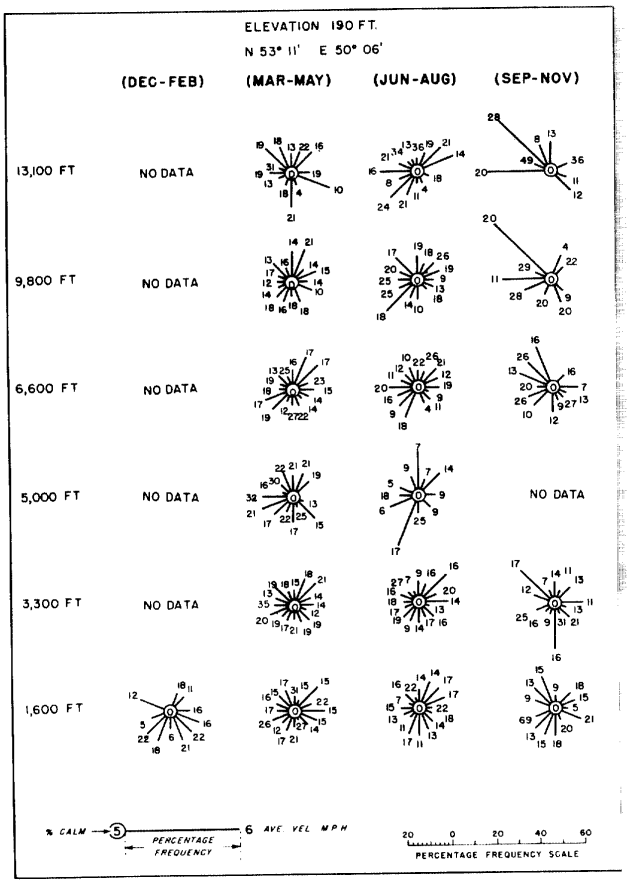


FIGURE V-21. *Upper-air wind roses for Kuybyshev.*

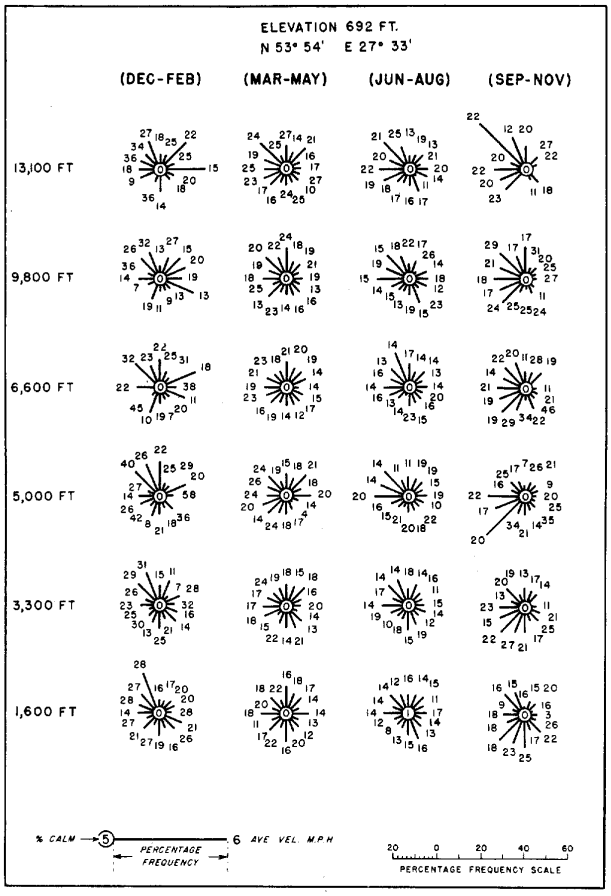


FIGURE V-22. *Upper-air wind roses for Minsk.*

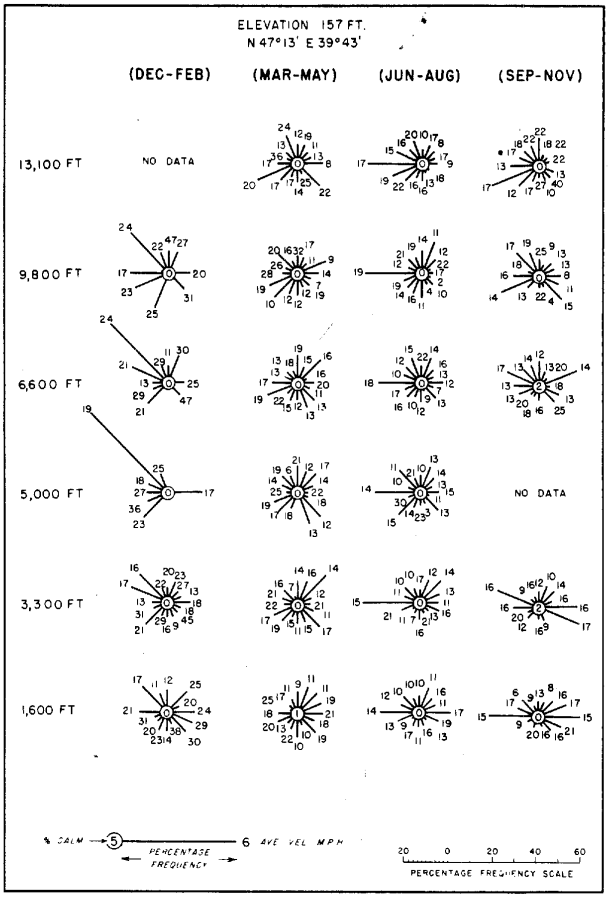


FIGURE V-24. *Upper-air wind roses for Rostov-na-Donu.*

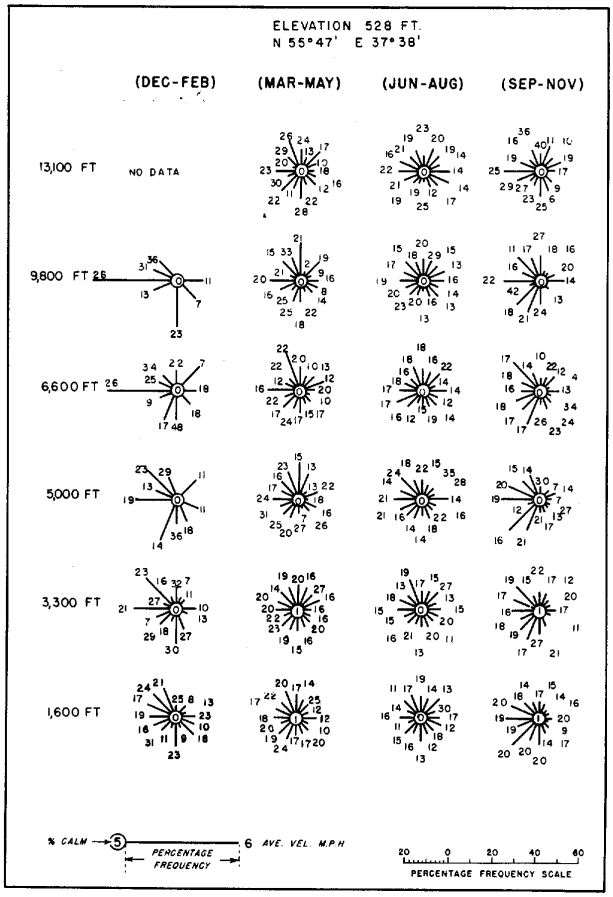


FIGURE V-23. *Upper-air wind roses for Moscow.*

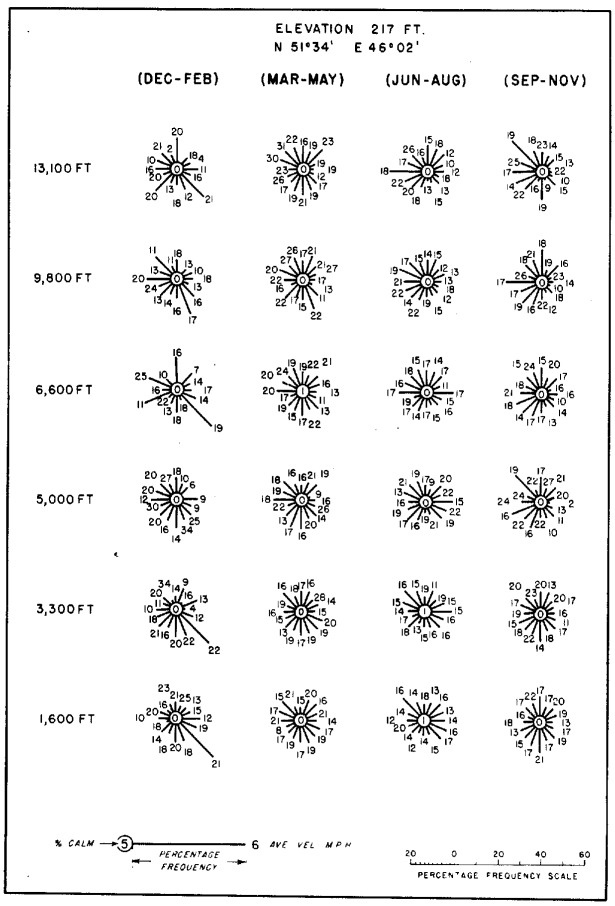


FIGURE V-25. *Upper-air wind roses for Saratov.*

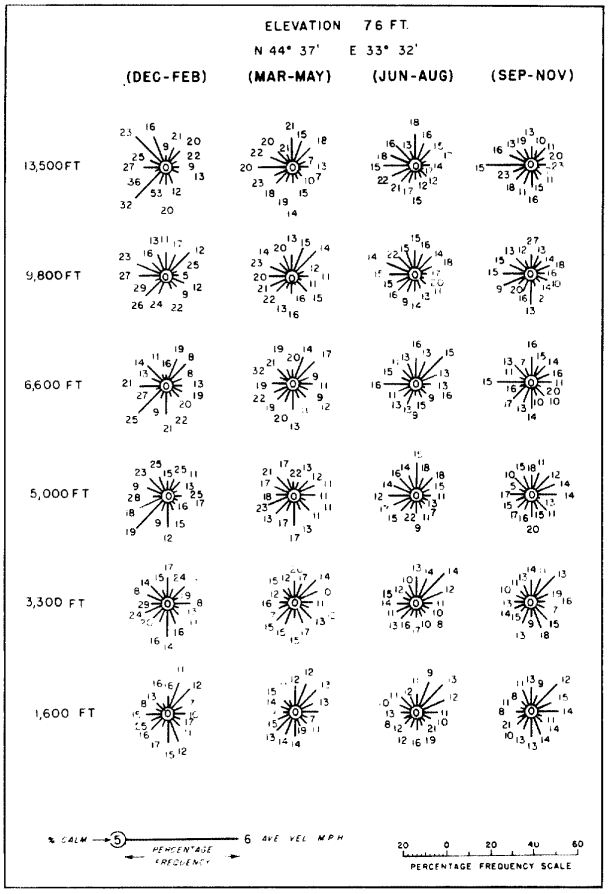


FIGURE V-26. *Upper-air wind roscs for Sevastopol'.*

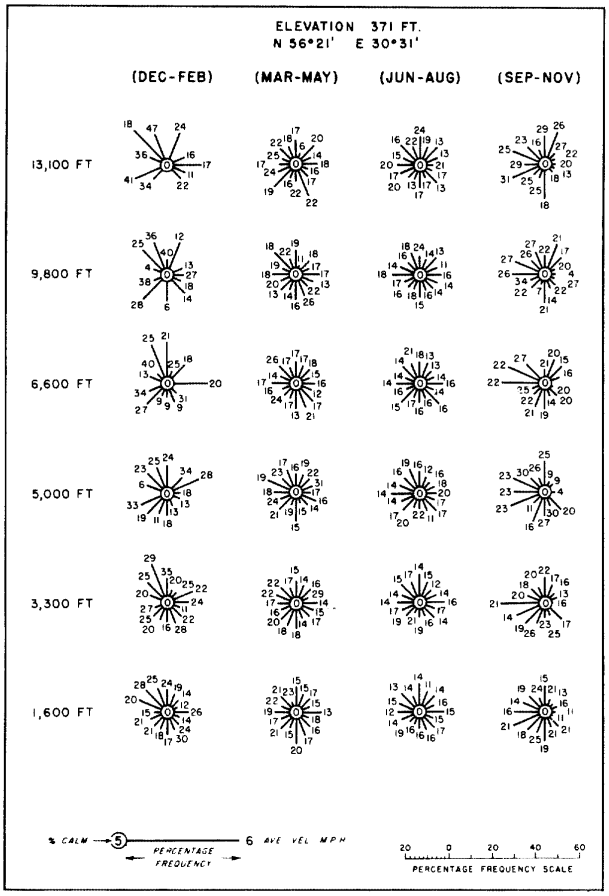


FIGURE V-28. *Upper-air wind roses for Velikiye Luki.*

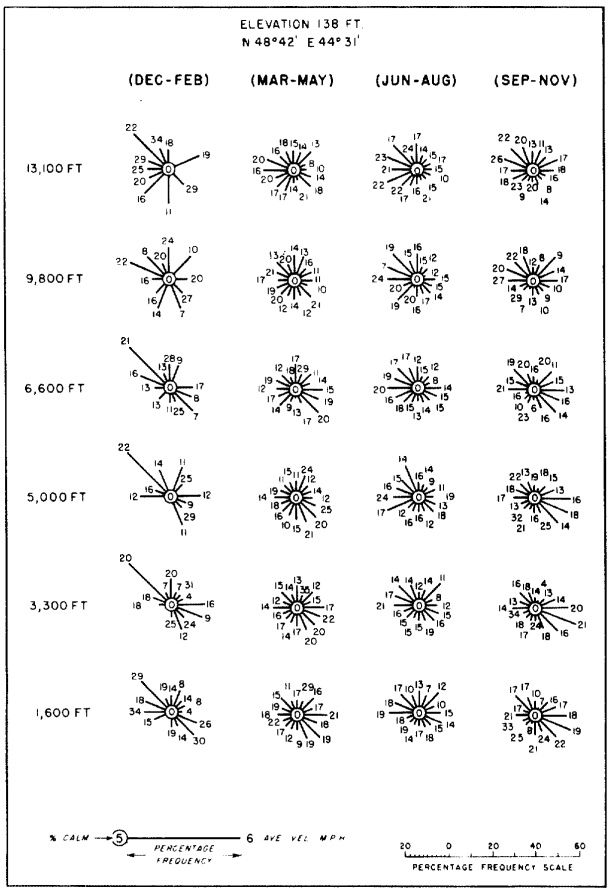


FIGURE V-27. *Upper-air wind roses for Stalingrad.*

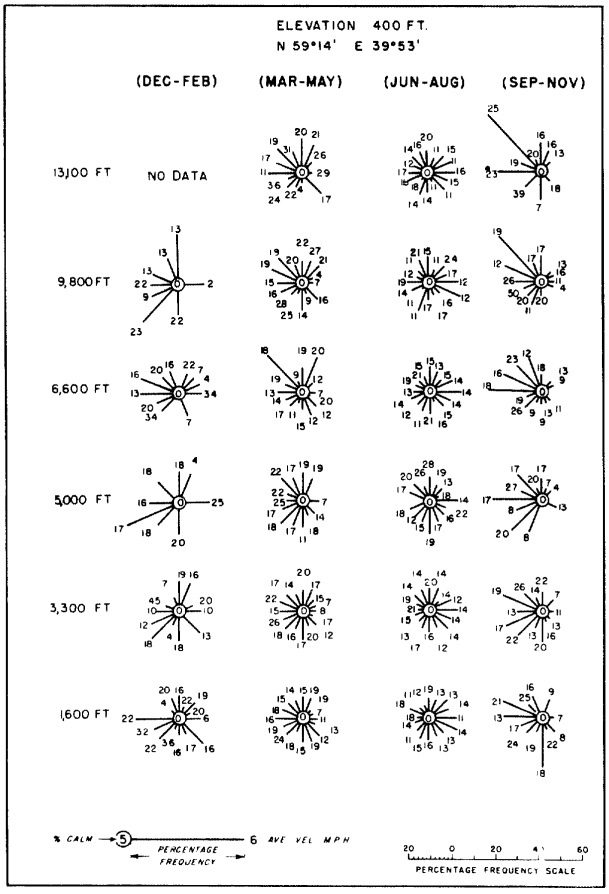


FIGURE V-29. *Upper-air wind roses for Vologda.*

FIGURES V-18 TO V-30
UPPER AIR WIND ROSES
JANIS 40
CONFIDENTIAL

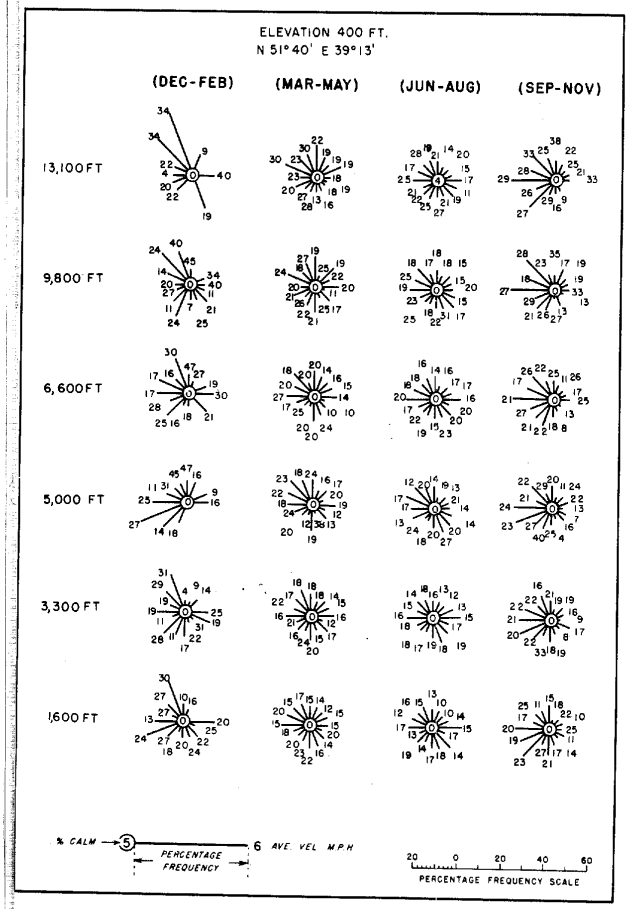


FIGURE V-30. *Upper-air wind roses for Voronezh.*

F. Cloud and ceilings

TABLES V-29 through V-33 give data on mean cloudiness. TABLES V-34 through V-36 show average number of days with ceilings of specified heights during certain hours of the day.

TABLE V - 29

MEAN CLOUDINESS * (%)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	88	87	83	76	73	68	74	80	85	87	90	89	82	25
Astrakhan'	69	61	63	54	46	42	37	32	40	50	69	75	53	20
Helsinki	80	75	67	64	58	55	53	62	63	74	81	83	68	36
Kazan'	68	69	52	49	50	54	51	51	58	71	83	72	61	13
Kem'	73	70	67	68	75	66	64	72	75	77	82	75	72	21
Kerch'	76	74	69	57	48	41	30	26	35	49	71	77	54	34
Khar'kov	76	79	77	64	53	61	46	42	49	61	81	85	64	10
Kiyev	76	76	69	61	55	55	50	39	49	60	77	82	62	10
Kola	70	70	60	69	72	68	75	77	77	81	77	76	73	10
Kuybyshev	66	65	64	56	51	51	49	51	66	68	83	77	62	9
Leningrad	84	78	68	62	60	60	61	64	69	79	83	88	71	10
Mezen'	79	82	73	75	79	69	73	78	82	85	86	78	78	13
Minsk	82	84	75	67	62	61	65	58	64	73	85	88	72	10
Moskva	74	74	75	59	53	56	53	56	69	74	87	85	68	10
Nikolayev	70	69	67	51	44	41	33	28	34	49	70	72	52	39
Odessa	77	77	72	59	54	51	37	31	39	54	74	80	59	10
Ostrov Kolguyev	82	77	73	81	89	83	80	83	84	86	86	85	82	..
Ostrov Vaygach	72	68	65	68	81	79	73	78	83	85	82	75	75	..
Pinsk	77	73	71	60	58	56	55	55	54	71	83	82	66	16
Rostov-na-Donu	77	79	78	64	47	51	36	29	35	50	77	84	59	10
Saratov	68	69	59	56	44	46	44	40	48	59	75	72	57	13
Sevastopol'	73	69	62	50	41	35	25	19	29	43	61	70	48	20
Sortavala	79	73	64	62	58	56	54	63	66	78	85	83	68	36
Stalingrad	67	73	71	55	46	49	35	29	38	49	78	82	56	9
Taganrog	73	76	68	57	46	44	36	29	35	48	74	81	56	30
Tallinn	80	77	65	66	61	60	57	65	70	80	87	87	71	15
Tambov	79	79	80	68	60	65	56	53	68	70	86	87	71	10
Ufa	63	67	61	54	56	58	57	59	70	75	84	76	65	10
Uman'	81	84	78	68	68	70	60	47	53	65	79	86	70	10
Velikiye Luki	82	76	73	60	56	64	61	58	66	71	82	83	69	10
Vil'nyus	81	76	70	64	57	57	59	61	62	69	86	85	69	..
Vologda	71	74	67	58	64	63	59	65	77	80	88	81	71	10
Vyborg	78	75	63	60	56	57	54	63	67	76	86	84	68	40
Warszawa	76	74	68	65	59	59	61	58	58	67	80	82	67	..

* Mean of 0700, 1300, and 2100 observations.

TABLE V - 30

MEAN CLOUDINESS (%) AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
							0700							
Arkhangel'sk	82	83	78	73	75	68	72	78	83	85	87	82	79	20
Astrakhan'	60	70	63	54	44	32	28	26	33	41	70	81	50	10
Helsinki	81	78	71	67	59	55	53	65	69	78	83	81	70	36
Kazan'	76	80	67	63	56	52	51	56	75	80	88	82	69	13
Kem'	74	72	72	71	68	69	72	74	80	86	79	80	75	10
Kerch'	81	83	83	64	50	54	40	39	52	66	83	85	65	10
Kiyev	78	80	73	63	52	51	46	36	51	64	80	85	63	10
Kola	71	73	65	72	73	71	74	79	80	82	80	74	74	10
Kuybyshev	82	73	73	72	57	46	49	42	49	67	73	86	64	9
Leningrad	86	82	75	64	60	60	61	64	71	84	87	87	73	10
Mezen'	79	87	78	75	80	71	73	80	84	88	87	77	80	13
Minsk	89	90	82	70	59	57	62	60	73	82	89	90	75	10
Moskva	76	76	81	61	52	49	48	56	72	79	88	86	69	10
Odessa	79	82	77	62	55	48	31	28	41	62	79	82	60	10
Rostov-na-Donu	80	82	84	69	50	50	32	31	40	61	80	86	62	10
Saratov	74	75	66	61	43	41	36	37	52	65	80	75	59	13
Sevastopol'	78	76	69	56	47	40	24	20	34	49	68	75	53	20
Sortavala	79	79	69	66	56	54	52	63	72	82	87	83	70	36
Stalingrad	74	78	79	59	42	45	31	29	37	56	82	85	58	9
Tambov	79	84	85	70	58	57	49	50	70	74	88	87	71	10
Ufa	62	70	68	56	52	56	55	56	73	78	85	79	66	10
Uman'	85	92	82	71	65	62	53	43	58	71	87	90	72	10
Velikiye Luki	82	84	79	61	54	60	57	60	72	73	85	84	71	10
Vologda	73	80	75	63	58	60	54	63	83	86	90	83	72	10
							1300							
Arkhangel'sk	85	79	71	68	71	70	73	79	84	85	87	85	78	20
Astrakhan'	58	63	60	52	48	43	33	28	36	39	71	80	51	10
Helsinki*	82	77	69	66	59	57	55	63	67	78	83	85	70	36
Kazan'	76	78	66	64	63	64	63	66	77	83	88	83	73	13

* 1400 observations.

TABLE V - 30 (Continued)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
							1300 (Continued)							
Kem'	81	73	67	68	70	70	71	77	83	85	83	86	76	10
Khar'kov	79	79	77	74	65	71	55	55	58	65	84	86	71	10
Kiyev	77	77	72	68	60	63	58	48	55	61	77	83	67	10
Kola	72	70	60	67	72	66	77	76	78	80	80	81	73	10
Kuybyshev	67	67	67	60	57	54	56	56	71	70	86	79	66	9
Leningrad	86	77	69	65	64	64	65	69	76	83	83	88	74	10
Mezen'	82	79	69	70	78	72	73	80	84	84	86	82	78	13
Minsk	83	82	78	74	68	66	71	67	72	75	86	90	76	10
Moskva	76	74	75	63	58	64	64	62	74	76	89	85	72	10
Odessa	78	77	77	63	58	59	46	39	43	56	76	80	63	10
Rostov-na-Donu	77	78	79	70	52	59	45	35	38	52	78	83	62	10
Saratov	68	69	60	59	50	54	52	48	53	61	78	74	60	13
Sevastopol'	73	70	60	51	42	37	31	25	32	44	62	72	50	20
Sortavala*	80	73	63	60	59	59	58	66	70	79	87	84	70	36
Stalingrad	68	73	71	61	53	56	41	35	44	53	76	82	59	9
Tambov	82	79	81	75	71	73	64	67	75	74	90	89	77	10
Ufa	67	70	64	58	62	63	64	67	76	78	86	79	70	10
Uman'	81	84	84	78	77	80	70	62	62	70	81	88	76	10
Velikiye Luki	84	73	73	67	60	72	69	66	73	72	85	86	73	10
Vologda	79	78	72	62	70	70	64	70	83	84	90	84	76	10
							2100							
Arkhangel'sk	77	74	61	69	73	64	68	73	75	79	84	80	73	20
Astrakhan'	55	56	51	39	26	33	22	19	22	34	65	72	41	10
Helsinki	77	70	60	60	55	54	51	57	52	67	78	82	64	36
Kazan'	68	69	52	49	50	54	51	51	58	71	83	72	61	73
Kem'	74	66	55	64	72	64	69	69	73	78	72	81	70	10
Khar'kov	69	75	72	53	45	57	42	31	38	52	75	84	58	10
Kishinev	85	84	81	70	71	72	69	67	74	82	85	87	77	20
Kiyev	73	72	62	51	53	51	47	32	40	54	73	78	57	10
Kola	86	86	82	78	75	73	78	85	86	87	88	88	83	24
Kuybyshev	57	56	54	52	49	51	49	48	59	60	77	69	57	9
Leningrad	80	74	59	56	57	57	58	58	59	71	79	89	66	10
Mezen'	77	79	71	79	80	65	73	75	79	84	85	76	77	13
Minsk	74	79	64	58	59	60	62	47	48	62	81	85	65	10
Moskva	71	72	70	52	50	55	48	49	61	68	84	85	64	10
Odessa	74	72	63	51	48	46	34	26	32	45	68	77	53	10
Rostov-na-Donu	74	76	70	52	40	45	32	22	26	38	72	82	52	10
Saratov	61	62	52	48	38	43	43	34	38	50	68	68	50	13
Sevastopol'	67	61	56	42	34	29	20	12	22	35	54	46	41	20
Sortavala	77	68	59	61	59	56	53	61	56	72	82	81	65	36
Stalingrad	58	67	64	45	42	46	33	24	32	39	76	78	50	9
Tambov	75	73	74	59	52	66	54	43	58	62	80	84	65	10
Ufa	59	62	52	47	54	55	53	53	60	70	81	71	60	10
Uman'	90	89	87	75	69	79	76	71	74	81	87	91	81	22
Velikiye Luki	79	70	66	52	54	61	57	49	52	67	77	79	64	10
Vologda	62	65	54	50	63	58	60	61	64	71	83	77	64	10

* 1400 observations.

TABLE V - 31

MEAN NUMBER OF CLEAR DAYS (0% TO 20% CLOUD COVER)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	1.5	1.7	3.2	3.3	1.1	2.7	1.4	1.1	0.8	0.6	1.0	1.3	19.7	18
Astrakhan'	6.4	5.3	8.8	8.1	10.6	12.3	16.1	17.6	14.9	13.9	3.6	3.0	120.6	18
Helsinki	2	2	5	4	5	5	5	3	3	2	2	2	40	36
Kazan'	2.9	3.5	4.5	5.0	4.8	4.1	4.4	4.1	3.3	2.3	1.3	2.2	42.4	3
Kem'	3.5	3.4	4.6	4.7	3.1	3.5	2.8	1.3	2.6	1.9	1.9	1.5	34.8	13
Khar'kov	3	2	2	3	5	3	8	8	7	6	2	1	50	10
Kishinev	3.2	2.6	4.8	4.9	6.5	4.9	8.4	10.3	10.2	6.7	3.3	2.4	68.2	37
Kiyev	3	2	3	4	4	3	5	10	7	6	2	1	84	25
Kola	1.3	1.4	2.8	1.8	1.3	1.6	0.6	0.4	0.3	0.8	0.8	0.7	13.8	18
Kuybyshev	4.1	3.5	5.6	5.9	5.6	4.2	4.6	5.5	2.8	3.3	0.7	2.1	47.9	13
Leningrad	1.2	1.7	4.1	5.0	4.2	3.6	4.0	2.3	3.1	1.8	1.3	0.8	33.1	18
Mezen'	3.5	1.5	2.7	2.9	0.8	2.5	2.3	0.6	0.5	0.6	1.0	2.4	21.3	13
Minsk	1	1	2	3	4	3	2	4	3	2	1	1	27	10
Moskva	2.4	2.5	3.8	5.8	5.3	3.5	3.8	4.3	2.8	3.2	1.1	1.6	40.1	18
Odessa	2	1	3	6	5	4	10	12	10	6	2	2	63	10
Onega	1.8	2.1	2.8	2.8	2.2	3.6	2.1	1.8	1.2	0.6	0.6	1.7	23.3	21
Ostrov Kolguyev	1	2	1	1	0	1	2	0	1	0	0	1	10	..
Rostov-na-Donu	2.6	1.9	1.7	3.6	7.0	3.9	10.4	15.2	12.6	8.0	2.5	1.4	70.8	10
Saratov	3.8	4.1	5.6	4.6	7.6	5.7	6.5	8.4	7.7	5.4	1.9	3.4	64.7	14
Sevastopol'	2.3	1.9	4.3	7.6	9.9	11.0	17.0	19.7	15.1	9.4	3.9	2.0	104.1	18
Sortavala	2	3	5	4	4	4	4	3	2	2	0.8	2	36	36
Stalingrad	4.4	3.8	4.8	6.3	8.9	7.7	10.8	14.6	11.4	10.4	2.9	2.4	88.4	13
Tambov	2	2	2	3	5	3	5	5	3	4	1	2	37	10
Ufa	6	3	6	7	4	4	3	4	2	3	2	3	47	10
Uman'	2	1	2	2	2	1	3	6	6	5	2	1	33	10
Velikiye Luki	2	2	2	5	5	2	3	4	2	3	1	1	32	10
Vologda	2.6	2.3	4.8	5.1	3.2	3.4	3.0	2.3	1.5	1.5	1.2	2.2	33.1	18
Voronezh	3	3	6	6	7	6	7	10	9	6	2	3	68	9

TABLE V - 32

MEAN NUMBER OF PARTLY CLOUDY DAYS (30% TO 70% CLOUD COVER)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	9.6	10.4	13.7	12.6	15.7	15.1	15.9	14.0	11.5	10.0	8.2	9.8	146.5	18
Astrakhan'	11.7	11.1	12.7	15.6	17.7	15.4	13.4	12.2	13.2	11.5	13.6	9.7	157.8	18
Helsinki	9	10	12	14	17	17	19	18	17	12	8	7	160	36
Kazan'	10.1	10.3	13.2	14.8	17.9	17.6	19.1	18.4	14.8	11.5	7.2	7.3	162.2	13
Kem'	12.0	11.0	15.1	13.7	15.0	17.2	15.8	15.5	13.2	11.9	10.7	11.4	162.5	13
Khar'kov	9	9	10	16	19	18	19	19	16	13	9	8	165	10
Kishinev	11.0	10.1	12.6	14.4	16.3	17.6	17.1	16.3	13.6	14.5	10.6	8.7	162.8	37
Kiyev	9	11	14	16	20	21	21	18	17	13	10	9	179	10
Kola	13.8	13.0	16.3	13.4	12.2	13.9	13.4	14.2	13.1	12.3	11.6	13.1	160.3	18
Kuybyshev	11.1	11.6	13.7	15.2	19.2	20.6	21.8	20.6	18.4	14.0	8.1	10.5	184.8	13
Leningrad	9.7	9.4	13.6	13.1	15.7	16.6	16.3	17.7	15.1	10.5	8.4	7.9	154.0	18
Mezen'	7.5	8.7	12.7	10.0	11.9	14.0	14.3	13.6	10.9	9.2	9.5	9.9	132.2	13
Minsk	10	7	13	14	17	18	19	19	17	14	7	6	161	10
Moskva	9.1	9.1	10.9	13.4	18.1	19.6	20.2	17.8	14.7	11.0	7.3	6.9	158.1	18
Odessa	11	12	13	13	19	21	19	17	16	17	12	10	180	10
Onega	10.6	10.2	15.2	14.4	16.3	15.9	18.5	15.2	13.8	11.9	7.4	9.5	158.9	21
Ostrov Kolguyev	12	10	17	11	7	9	27	9	9	10	9	9	139	..
Rostov-na-Donu	9.6	8.8	11.1	16.0	19.1	22.0	18.0	13.5	14.1	15.5	10.0	7.0	164.7	10
Saratov	12.6	10.8	13.3	17.2	19.3	20.5	20.5	19.6	16.4	16.1	11.9	11.5	189.7	14
Sevastopol'	13.1	13.7	15.5	14.5	16.8	16.6	12.4	10.6	12.8	17.1	16.1	13.2	172.4	18
Sortavala	10	10	13	14	19	19	20	18	17	11	8	8	167	36
Stalingrad	12.1	8.7	10.7	16.7	15.3	17.1	16.5	13.9	14.7	13.0	9.4	9.1	157.2	13
Tambov	10	9	9	13	16	15	18	19	15	11	8	6	149	10
Ufa	12	13	13	15	20	18	21	18	16	11	7	9	173	10
Uman'	10	8	11	15	17	17	18	20	16	13	10	8	163	10
Velikiye Luki	8	10	14	15	18	18	19	19	18	14	10	10	173	10
Vologda	11.5	9.5	13.6	13.3	17.1	17.5	17.9	16.7	14.1	10.4	7.9	9.6	159.1	18
Voronezh	9	10	12	15	19	21	20	18	14	13	9	9	169	9

TABLE V - 33

MEAN NUMBER OF CLOUDY DAYS (80% TO 100% CLOUD COVER)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	19.9	15.9	14.1	14.1	14.2	12.2	13.7	15.9	17.7	20.4	20.8	19.9	198.8	18
Astrakhan'	12.9	11.6	9.5	6.3	2.7	2.3	1.5	1.2	1.9	5.6	12.8	18.3	86.6	18
Helsinki	20	16	14	12	9	8	7	10	10	17	20	22	165	36
Kazan'	18.0	14.2	13.3	10.2	8.3	8.3	7.5	8.5	11.9	17.2	21.5	20.5	159.4	60
Kem'	15.5	13.6	11.3	11.6	12.9	9.3	12.4	14.2	14.2	17.2	17.4	18.1	167.7	13
Khar'kov	19	17	19	11	7	9	4	4	7	12	19	22	150	10
Kishinev	16.8	15.3	13.6	10.7	8.2	7.5	5.5	4.4	6.2	9.8	16.1	19.9	134.0	37
Kiyev	19	15	14	10	7	6	5	3	6	12	18	21	136	10
Kola	15.9	13.6	11.9	14.8	17.5	14.5	17.0	16.4	16.6	17.9	17.6	17.2	190.9	18
Kuybyshev	15.8	12.9	11.7	8.9	6.2	5.2	4.6	4.9	8.8	13.7	21.2	18.4	132.3	13
Leningrad	20.1	16.9	13.3	11.9	11.1	9.8	10.7	11.0	11.8	18.7	20.3	22.3	177.9	18
Mezen'	20.0	17.8	15.6	17.1	18.3	13.5	14.4	16.8	18.6	21.2	19.5	18.7	211.5	13
Minsk	20	20	16	13	10	9	10	8	10	15	22	24	177	10
Moskva	19.5	16.4	16.3	10.8	7.6	6.9	7.0	8.9	12.5	16.8	21.6	22.5	166.8	18
Odessa	18	15	15	11	7	5	2	2	4	8	16	19	122	10
Onega	18.6	15.7	13.0	12.8	12.5	10.5	10.4	14.0	15.0	18.5	22.0	19.8	182.8	21
Ostrov Kolguyev	18	16	13	18	24	20	2	22	20	21	21	21	216	..
Ostrov Vaygach	17	13	13	13	19	19	16	18	20	21	20	16	205	..
Pinsk	18.8	17.3	18.2	10.4	4.9	4.1	2.6	2.3	3.3	7.5	17.5	22.6	129.5	10
Saratov	14.6	13.1	12.1	8.2	4.1	3.8	4.0	3.0	5.9	9.5	16.2	16.1	110.6	14
Sevastopol'	15.6	12.4	11.2	7.9	4.3	2.4	1.6	0.7	2.1	4.5	10.0	15.8	88.5	18
Smolensk	21	18	14	10	8	8	7	7	8	16	22	21	160	10
Sortavala	19	15	13	12	8	7	7	10	11	18	21	21	162	36
Stalingrad	14.5	15.5	15.5	7.0	6.8	5.2	3.7	2.5	3.9	7.6	17.7	19.5	119.4	13
Tambov	19	17	20	14	10	12	8	7	12	16	21	23	179	10
Ufa	13	12	12	8	7	8	7	9	12	17	21	19	145	10
Uman'	19	19	18	13	12	12	10	5	8	13	18	22	169	10
Velikiye Luki	21	16	15	10	8	10	9	8	10	14	19	20	160	10
Vologda	16.9	16.2	12.6	11.6	10.7	9.1	10.1	12.0	14.4	19.1	20.9	19.2	172.8	18
Voronezh	19	15	13	9	5	3	4	3	7	12	19	19	128	9

TABLE V - 34

AVERAGE NUMBER OF DAYS WITH CEILING* LESS THAN 600 FEET AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
							0700						
Kazan'	0.5	1.4	1.2	0.2	0.2	1.0	0.4	0.9	1.1	1.3	2.1	1.1	6
Kem'	4.9	2.7	0.4	0.6	0.7	0.6	0.4	1.6	0.8	..	..	..	6
Kerch'	1.7	2.1	3.1	2.7	0.4	0.4	0.0	0.0	0.8	0.6	1.6	4.7	5
Khar'kov	6.1	3.4	2.8	2.3	1.1	2.4	0.6	1.7	1.9	3.7	6.0	6.4	3
Kiyev	2.8	2.9	3.2	0.9	0.2	0.4	0.2	0.2	0.4	2.5	4.5	4.9	6
Leningrad	1.0	0.3	2.1	1.2	0.5	0.0	0.3	0.7	1.2	..	..	..	5
Minsk	3.4	3.4	3.4	3.8	0.7	0.9	2.0	3.1	3.3	6.2	7.0	7.7	6
Moskva	3.4	2.4	5.4	2.1	0.5	0.0	0.2	2.2	1.7	2.8	4.1	3.2	3
Odessa	1.5	0.6	2.3	1.3	1.3	0.2	0.0	0.2	1.0	0.4	1.3	2.7	2
Penza	3.0	1.1	3.5	2.1	0.6	0.6	0.4	1.9	1.8	3.8	3.3	1.9	6
Rostov-na-Donu	3.4	5.0	5.3	1.4	0.0	1.1	0.0	0.7	1.0	4.0	4.7	4.9	6
Saratov	2.1	3.8	5.1	1.8	0.4	0.7	0.2	0.5	0.5	2.7	2.7	4.3	6
Sevastopol'	0.6	0.2	1.0	0.4	0.9	0.2	0.0	0.0	0.0	0.6	0.0	1.2	6
Smolensk	9.6	5.9	6.3	1.0	0.5	0.0	2.6	1.5	2.0	7.3	8.5	7.0	2
Stalingrad	1.5	1.8	2.8	0.3	0.0	0.5	0.0	0.2	0.7	1.8	2.4	2.1	6
Ufa	4.8	2.4	2.8	1.6	0.5	0.7	1.1	0.8	0.6	3.0	2.2	4.6	6
Velikiye Luki	3.9	4.6	4.4	2.0	1.2	0.7	2.4	2.9	2.2	4.6	3.5	3.8	6
Vologda	0.7	1.7	1.4	3.5	0.3	0.3	0.5	1.1	1.4	2.1	1.7	0.7	6
Voronezh	2.9	2.5	5.0	2.1	0.4	0.5	0.4	1.0	0.5	2.3	3.7	3.8	6
							1300						
Kazan'	1.1	0.4	1.0	0.3	0.2	0.8	0.4	0.6	0.3	1.3	1.7	1.5	6
Kem'	1.2	1.3	0.2	0.4	0.6	0.2	0.2	0.2	0.2	..	..	..	6
Kerch'	1.3	1.9	1.5	0.6	0.4	0.2	0.0	0.0	0.2	0.6	1.0	2.9	5
Khar'kov	5.4	2.8	1.5	1.9	0.4	0.6	0.0	0.5	0.6	0.9	5.5	7.7	3
Kiyev	1.6	2.0	1.5	0.2	0.2	0.0	0.2	0.0	0.0	0.4	1.9	4.0	6
Leningrad	0.5	0.5	0.5	0.9	0.4	0.0	0.4	0.2	0.2	..	..	..	5
Minsk	3.0	2.8	2.7	1.5	0.0	0.2	1.7	0.9	1.3	2.9	6.2	7.2	6
Moskva	3.5	1.8	2.2	0.5	0.2	0.0	0.4	0.7	0.3	1.3	2.8	5.1	3
Odessa	1.8	0.8	0.6	1.2	0.4	0.4	0.0	0.0	0.4	0.4	1.4	1.6	2
Penza	1.8	1.2	0.8	0.4	1.2	0.2	0.2	1.4	0.4	1.6	0.4	0.6	6
Rostov-na-Donu	2.3	3.1	2.3	0.2	0.0	0.2	0.0	0.0	0.0	0.9	3.1	5.1	6
Saratov	2.1	3.8	5.1	1.8	0.4	0.7	0.2	0.5	0.5	2.7	2.7	4.3	6
Sevastopol'	0.4	0.4	0.2	0.6	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.0	6
Smolensk	7.0	5.1	4.6	1.5	0.0	0.0	0.0	0.0	0.0	2.6	6.5	11.0	2
Stalingrad	1.7	1.7	0.8	0.3	0.4	0.2	0.0	0.0	0.0	0.2	1.5	3.4	6
Ufa	2.1	1.5	1.8	0.5	0.5	0.2	0.2	0.8	0.4	2.3	1.5	2.5	6
Velikiye Luki	6.1	3.0	2.7	0.5	0.7	0.5	1.1	0.2	0.7	3.2	5.5	6.9	6
Vologda	0.8	0.7	0.7	0.8	0.2	0.0	0.0	0.7	0.2	1.0	1.0	1.0	6
Voronezh	2.5	1.9	1.7	0.6	0.0	0.2	0.0	0.2	0.2	0.8	2.0	5.1	6
							1900						
Kazan'	0.7	1.0	0.9	0.5	0.3	0.7	0.0	0.5	0.8	1.1	2.1	1.5	6
Kem'	5.1	3.6	2.0	0.9	0.9	0.2	0.4	1.0	0.8	..	..	..	6
Kerch'	2.0	2.6	1.5	0.8	0.2	0.2	0.0	0.0	0.0	0.2	3.1	2.3	5
Khar'kov	5.4	2.1	1.4	1.1	0.6	0.6	0.4	0.2	0.5	1.9	5.1	6.7	3
Kiyev	2.7	1.5	2.0	0.0	0.2	0.2	0.4	0.0	0.0	0.0	2.2	4.8	6
Leningrad	0.5	0.5	0.5	0.0	0.2	0.0	0.0	0.5	0.2	..	..	..	5
Minsk	3.1	2.4	2.3	0.3	0.3	0.2	0.4	0.6	0.9	2.1	4.4	7.7	6
Moskva	2.7	2.3	2.3	1.0	0.3	0.0	0.2	0.7	0.7	1.2	2.3	3.9	3
Odessa	2.4	1.5	1.0	0.2	0.2	0.0	0.0	0.2	0.2	0.2	1.5	2.5	2
Penza	3.1	1.1	1.3	1.1	0.7	0.2	0.6	0.2	0.4	1.8	2.7	2.0	6
Rostov-na-Donu	2.7	3.4	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5	2.8	6
Saratov	3.0	2.5	3.1	0.6	0.4	0.6	0.2	0.0	0.4	2.0	1.3	4.4	6
Sevastopol'	0.0	1.2	0.7	0.7	1.1	0.2	0.0	0.0	0.2	0.7	0.2	1.0	6
Smolensk	6.7	4.6	3.3	1.5	0.0	0.5	0.0	0.0	0.0	2.1	4.6	11.0	2
Stalingrad	1.4	1.3	1.0	0.4	0.0	0.2	0.2	0.0	0.0	0.0	1.0	1.0	6
Ufa	4.1	3.0	2.8	1.0	0.2	0.2	0.2	0.0	0.2	2.8	2.7	3.8	6
Velikiye Luki	5.9	3.2	2.9	0.5	0.5	0.2	0.6	0.0	0.5	2.1	3.6	4.9	6
Vologda	0.9	0.5	1.1	0.2	0.4	0.2	0.0	0.2	0.6	1.0	0.9	0.6	6
Voronezh	2.5	2.1	2.3	0.6	0.2	0.0	0.0	0.2	0.2	1.1	1.5	4.4	6

* Cloud cover ≧ 70 percent.

TABLE V - 35

AVERAGE NUMBER OF DAYS WITH CEILING* LESS THAN 1,000 FEET AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
							0700						
Kazan'	2.7	3.6	2.2	0.9	0.5	1.5	0.4	2.1	2.5	2.6	3.3	4.2	6
Kem'	4.9	2.7	0.8	1.2	1.0	0.8	1.4	1.8	1.4	..	..	..	6
Kerch'	2.4	3.6	3.7	4.0	1.5	0.8	0.0	0.0	0.8	1.2	3.0	6.7	5
Khar'kov	10.6	6.4	7.0	5.8	2.3	3.9	1.5	2.1	2.4	6.1	8.4	10.1	3
Kiyev	3.4	3.1	3.7	1.8	0.4	0.8	0.2	0.2	0.6	4.0	5.7	4.9	6
Leningrad	1.3	0.8	2.3	1.2	0.7	0.0	0.5	1.0	1.4	..	..	..	5
Minsk	7.3	7.8	5.1	8.7	2.4	2.1	3.9	5.5	6.4	11.2	13.5	14.2	6
Moskva	6.1	3.9	7.1	3.1	0.7	0.2	1.2	2.5	2.9	4.3	6.8	8.6	3
Odessa	2.6	1.6	3.7	1.5	1.7	0.2	0.2	0.4	1.2	1.7	4.1	3.9	2
Penza	3.1	1.1	1.3	1.1	0.7	0.1	0.6	0.2	0.4	1.8	2.7	2.0	6
Rostov-na-Donu	4.6	6.4	6.2	2.2	0.2	1.6	0.0	0.9	1.0	5.0	5.6	7.5	6
Saratov	6.9	7.3	7.9	3.3	0.4	1.5	0.7	0.7	1.7	4.1	5.9	8.6	6
Sevastopol'	1.0	1.0	1.5	0.9	1.4	0.2	0.4	0.2	0.0	0.8	1.7	1.6	6
Smolensk	18.2	14.0	13.1	3.1	1.5	1.6	4.2	4.0	4.5	12.0	17.0	21.0	2
Stalingrad	2.5	2.3	4.4	0.9	0.0	0.8	0.0	0.5	0.7	2.2	3.8	3.1	6
Ufa	5.3	2.6	3.5	2.3	1.9	1.2	1.6	1.4	1.7	4.5	5.2	6.3	6
Velikiye Luki	8.9	9.1	9.0	5.0	2.8	1.2	5.1	6.4	4.9	9.6	10.8	9.9	6
Vologda	3.6	4.8	3.4	4.4	1.2	1.0	1.2	1.3	3.5	3.7	5.7	6.4	6
Voronezh	6.1	4.5	6.7	3.5	0.7	1.5	0.6	1.3	0.8	2.8	6.4	7.7	6
							1300						
Kazan'	2.3	1.6	1.5	1.0	0.2	1.8	0.6	0.9	1.2	2.6	2.7	2.7	6
Kem'	2.0	1.5	1.3	0.9	1.3	0.6	0.4	0.2	0.4	..	..	..	6
Kerch'	1.7	2.6	1.9	1.3	0.6	0.4	0.0	0.0	0.4	1.0	3.8	4.4	5
Khar'kov	8.9	6.8	5.2	3.9	2.6	1.9	0.6	1.4	1.2	2.0	8.6	10.7	3
Kiyev	3.6	2.4	1.9	0.9	0.2	0.2	0.4	0.0	0.0	0.4	2.6	4.0	6
Leningrad	0.7	0.7	0.8	1.2	0.4	0.0	0.4	0.2	0.2	..	..	..	5
Minsk	7.7	6.2	4.8	6.0	0.7	1.6	4.0	1.9	4.6	7.7	11.5	13.4	6
Moskva	5.9	3.3	4.3	1.6	0.2	0.0	0.6	1.2	1.3	2.3	4.8	8.5	3
Odessa	3.6	1.2	1.0	1.6	0.4	0.4	0.0	0.0	0.6	1.0	3.6	2.2	2
Penza	4.7	1.8	4.8	2.3	1.1	1.7	0.6	2.5	3.2	4.5	4.6	3.1	6
Rostov-na-Donu	4.1	3.6	3.3	0.9	0.0	0.2	0.2	0.2	0.0	1.7	3.8	6.2	6
Saratov	8.1	5.7	5.5	1.5	0.7	1.2	0.6	0.4	1.2	4.1	5.3	9.2	6
Sevastopol'	0.4	0.9	0.5	1.0	0.2	0.2	0.2	0.0	0.0	0.2	0.6	0.2	6
Smolensk	16.2	10.7	9.8	3.6	0.0	0.0	1.5	2.0	2.0	7.4	15.0	21.5	2
Stalingrad	3.1	2.5	2.3	0.8	0.4	0.7	0.0	0.0	0.0	0.7	3.2	6.1	6
Ufa	2.9	2.0	2.1	1.5	0.8	0.5	0.4	1.0	1.4	3.6	3.6	3.6	6
Velikiye Luki	9.8	5.3	6.5	2.0	1.7	1.0	2.5	2.4	3.8	9.7	11.5	11.7	6
Vologda	4.6	3.1	4.0	1.5	0.5	0.0	0.4	0.9	1.4	3.1	5.6	5.3	6
Voronezh	6.8	4.0	3.6	1.5	0.5	1.4	0.2	0.4	0.7	2.0	6.4	8.1	6
							1900						
Kazan'	2.3	3.5	2.1	0.8	0.3	1.2	0.3	0.7	1.8	1.9	3.0	3.5	6
Kem'	5.4	3.6	2.7	0.9	1.2	0.6	1.0	1.2	1.2	..	..	..	6
Kerch'	2.9	4.1	2.2	2.1	0.2	0.2	0.0	0.0	0.0	2.9	4.4	4.1	5
Khar'kov	7.7	7.0	5.0	5.3	1.6	1.7	0.6	0.5	1.0	3.0	8.6	11.2	3
Kiyev	3.9	1.7	2.2	0.7	0.4	0.4	0.4	0.0	0.0	0.2	2.4	5.4	6
Leningrad	0.5	0.5	0.7	0.0	0.2	0.0	0.0	0.7	0.2	..	..	..	5
Minsk	6.5	6.1	5.5	4.3	1.3	1.2	1.6	1.8	3.4	6.0	10.5	13.1	6
Moskva	5.1	3.3	4.1	1.5	0.3	0.2	0.6	1.2	1.0	2.6	5.0	7.5	3
Odessa	2.9	1.5	1.2	0.2	0.2	0.0	0.0	0.2	0.2	1.0	3.5	3.1	2
Penza	4.8	1.5	2.4	1.3	0.9	0.6	0.6	0.4	1.3	2.6	4.4	2.4	6
Rostov-na-Donu	3.4	4.1	3.6	0.5	0.0	0.2	0.2	0.0	0.0	1.0	3.2	5.6	6
Saratov	7.2	5.8	5.7	1.8	0.9	1.0	0.4	0.2	0.6	3.1	3.9	7.6	6
Sevastopol'	0.0	1.2	1.0	0.9	1.3	0.4	0.0	0.2	0.2	0.7	0.4	1.4	6
Smolensk	15.0	9.4	10.9	2.5	0.0	1.0	0.0	0.0	2.0	5.1	15.8	19.5	2
Stalingrad	2.5	1.7	2.0	0.7	0.2	0.2	0.2	0.0	0.0	0.0	1.3	2.9	6
Ufa	4.6	3.6	3.5	1.7	0.4	0.7	0.2	0.0	0.4	3.0	3.7	4.7	6
Velikiye Luki	10.1	8.3	6.3	2.3	1.3	0.4	1.7	0.9	1.9	6.1	9.7	12.5	6
Vologda	3.9	2.9	3.3	1.1	0.7	0.7	0.0	0.2	1.4	2.2	4.6	4.5	6
Voronezh	7.2	3.9	5.7	1.8	9.2	0.7	0.0	0.4	0.2	1.6	4.4	8.3	6

* Cloud cover ≧ 70 percent.

TABLE V - 36

AVERAGE NUMBER OF DAYS WITH CEILING* LESS THAN 8,000 FEET AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
							0700						
Kazan'	18.3	14.4	12.3	10.8	7.9	7.0	6.0	10.2	12.4	17.7	17.1	15.6	6
Kem'	13.6	13.4	13.2	10.4	12.9	9.1	12.8	12.6	14.4	..	..	..	6
Kerch'	22.3	20.7	17.1	15.7	10.7	5.5	5.4	5.0	7.2	13.0	16.6	24.0	5
Khar'kov	23.9	16.1	14.4	11.9	6.3	8.2	5.9	6.5	6.7	14.3	17.7	24.7	3
Kiyev	22.7	17.6	14.8	10.5	6.1	5.4	6.3	8.4	8.4	15.5	20.7	23.1	6
Leningrad	21.4	19.1	18.8	13.0	10.7	6.5	10.4	10.0	13.5	..	..	..	5
Minsk	22.3	20.9	16.0	16.5	8.4	9.4	10.5	13.8	16.2	22.3	23.0	24.1	6
Moskva	23.3	17.8	19.0	14.9	9.5	9.0	9.0	11.8	13.4	22.4	23.7	24.0	3
Odessa	22.9	14.8	13.0	10.8	7.5	4.9	3.0	4.1	4.2	13.0	20.4	24.0	2
Penza	20.7	15.3	18.7	13.0	8.3	8.6	7.1	11.3	12.3	17.5	20.5	21.4	6
Rostov-na-Donu	22.1	17.9	14.8	12.1	5.8	6.1	3.4	4.0	4.7	13.8	17.5	21.8	6
Saratov	21.0	15.6	18.0	11.4	6.6	7.6	6.2	6.4	8.7	12.9	19.1	20.5	6
Sevastopol'	18.7	18.0	12.2	9.7	9.0	5.8	2.9	3.3	3.6	10.5	11.9	17.6	6
Smolensk	22.8	22.6	19.5	11.9	6.0	6.3	10.0	12.5	12.5	21.2	27.0	27.5	2
Stalingrad	21.8	19.3	15.9	9.0	4.8	6.8	2.5	4.3	4.4	11.0	16.5	22.1	6
Ufa	11.8	8.0	9.2	4.6	6.8	4.9	4.4	4.0	5.8	12.9	12.6	14.0	6
Velikiye Luki	23.3	20.9	17.4	14.6	11.5	6.5	12.5	13.9	12.3	21.8	23.1	25.1	6
Vologda	24.8	19.0	21.2	13.9	10.6	9.6	12.0	14.7	18.7	22.8	24.8	24.8	6
Voronezh	22.7	17.5	15.7	11.6	8.2	7.6	4.2	8.4	7.9	12.1	20.1	24.4	6
							1300						
Kazan'	17.4	9.2	10.0	10.6	10.1	10.9	10.5	10.9	10.5	19.0	17.1	14.5	6
Kem'	18.2	13.9	14.5	11.9	13.5	10.1	10.2	11.9	16.1	..	..	..	6
Kerch'	21.0	18.7	14.0	11.6	7.3	8.0	7.9	7.8	5.8	11.6	17.3	22.1	5
Khar'kov	20.4	15.0	15.4	16.0	11.4	13.9	11.5	11.7	6.3	13.5	19.3	23.0	3
Kiyev	21.9	17.0	13.1	14.4	9.4	8.9	11.6	13.3	7.4	13.9	21.8	22.9	6
Leningrad	21.5	15.3	15.9	12.7	10.6	7.0	11.9	10.0	11.7	..	..	..	3
Minsk	20.2	16.3	14.8	17.2	13.3	15.9	13.3	18.0	17.2	20.3	22.3	24.1	6
Moskva	22.5	14.1	15.3	16.4	12.3	12.8	15.6	15.8	14.7	20.1	22.3	24.5	6
Odessa	20.2	13.1	12.2	9.4	5.8	5.0	2.8	5.2	6.6	9.6	20.1	20.6	6
Penza	21.7	12.6	13.6	13.5	15.0	12.4	12.3	13.4	11.5	15.5	19.1	20.1	6
Rostov-na-Donu	20.1	15.3	13.4	11.1	5.5	7.3	5.8	5.3	4.8	11.1	15.3	20.0	6
Saratov	20.0	12.4	13.8	13.0	11.5	12.9	8.9	8.6	10.4	12.8	16.3	18.4	6
Sevastopol'	17.6	17.1	9.9	7.7	5.4	4.7	3.5	4.2	4.5	8.7	10.8	16.1	6
Smolensk	21.8	19.3	18.0	16.6	10.0	11.1	12.2	15.2	13.0	21.0	25.5	27.0	2
Stalingrad	19.6	15.5	12.5	11.5	5.8	11.3	6.4	6.6	5.5	8.0	15.5	20.7	6
Ufa	10.6	5.2	7.5	8.1	11.2	8.0	8.6	8.3	9.7	14.2	11.9	11.6	6
Velikiye Luki	22.1	16.7	15.9	11.4	14.7	13.2	15.7	15.7	14.6	21.9	23.7	26.3	6
Vologda	23.5	16.5	17.3	15.1	15.6	12.3	13.8	15.3	18.3	23.6	23.0	24.5	6
Voronezh	21.1	12.6	14.4	15.9	7.9	15.7	11.7	14.4	11.9	14.4	20.2	23.2	6
							1900						
Kazan'	16.3	10.6	12.1	10.6	9.1	8.2	5.5	8.9	11.1	16.4	16.6	15.4	6
Kem'	13.9	11.1	12.8	9.1	9.7	7.5	6.8	7.8	13.1	..	..	..	6
Kerch'	20.4	19.7	14.6	12.7	8.3	5.1	3.2	3.7	4.9	11.3	16.2	21.8	5
Khar'kov	20.1	15.2	15.0	13.2	5.8	6.7	4.1	6.4	5.6	10.7	17.1	23.8	3
Kiyev	20.5	14.0	13.5	12.6	7.0	6.0	5.2	7.3	6.6	10.7	18.8	23.6	6
Leningrad	20.2	16.6	15.2	11.3	9.1	6.1	7.3	8.9	11.4	..	..	..	5
Minsk	20.1	18.0	15.2	12.5	7.5	10.2	12.0	11.0	12.7	18.5	21.9	23.1	6
Moskva	20.2	16.0	14.9	14.7	10.2	7.6	7.8	10.7	12.9	19.2	22.3	21.3	3
Odessa	19.1	11.1	10.9	8.6	5.1	3.4	2.8	4.4	4.7	10.0	16.1	19.3	2
Penza	19.9	11.8	13.6	14.2	11.2	9.0	8.3	7.6	10.3	12.5	17.6	20.0	6
Rostov-na-Donu	18.7	17.0	12.3	9.6	3.7	6.2	4.1	3.1	3.7	8.8	13.0	19.8	6
Saratov	19.8	13.6	15.4	12.4	6.9	7.8	6.8	7.2	7.2	10.5	14.3	18.0	6
Sevastopol'	15.0	15.2	8.8	1.8	6.7	3.5	1.8	3.6	4.9	7.4	7.6	13.4	6
Smolensk	22.2	19.7	16.8	12.2	5.0	5.5	6.8	10.0	8.1	19.1	24.9	26.0	2
Stalingrad	19.1	16.0	12.6	9.9	5.2	9.1	3.8	5.3	3.6	6.9	12.9	19.6	6
Ufa	10.5	7.4	8.2	6.5	6.9	5.8	2.9	3.1	7.3	12.1	13.6	12.8	6
Velikiye Luki	19.7	17.4	16.8	13.9	12.9	6.5	10.2	10.8	11.3	18.5	19.8	23.4	6
Vologda	22.6	14.0	18.1	12.4	11.5	8.4	11.1	11.8	13.4	23.6	23.5	23.6	6
Voronezh	20.5	13.9	14.4	13.4	12.9	8.8	6.0	8.3	7.7	12.8	18.4	23.0	6

* Cloud cover ≧ 70 percent.

G. Thunderstorms and turbulence

Turbulence at higher levels is largely a result of convective activity. Data on thunderstorm frequency (TABLE V-37) give some indications of occurrence of intense convection.

Mechanical turbulence in the surface layers is related to wind speed and roughness of terrain. It may occur in clear or cloudy weather and is most intense in winter when wind speeds are generally highest. Thermal turbulence begins when the ground becomes warm in spring; it is most intense in summer and in the south.

TABLE V - 37

MEAN NUMBER OF DAYS WITH THUNDERSTORMS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	0	0	0	0	1.5	2.2	5.2	2.4	0.3	0	0	0	11.6	12
Astrakhan'	0	0	0	0.2	2.0	2.2	1.6	1.1	0.4	0	0	0	7.5	18
Helsinki	0	0	0	0.3	2	2	4	3	0.8	0.2	0.1	0	12	31
Kazan'	0	0	0	0	2	5	7	4	1	0	0	0	19	18
Kem'	0.0	0.0	0.0	0.1	1.1	1.6	4.3	1.7	0.2	0.0	0.0	0.0	9.0	18
Khar'kov	0	0	0	1	5	8	6	4	1	0	0	0	25	18
Kishinev	2.9	0.0	0.1	0.8	2.6	4.1	2.8	1.6	0.5	0.3	0.0	0.0	15.7	34
Kiyev	0	0	0	1	5	7	6	3	1	0	0	0	23	18
Kola	0.0	0.0	0.0	0.0	0.0	0.8	1.8	1.1	0.0	0.0	0.0	0.0	3.7	18
Kuybyshev	0.0	0.0	0.0	0.2	2.7	3.0	2.4	1.2	0.6	0.2	0.0	0.0	10.3	11
Leningrad	0.0	0.0	0.0	0.1	2.0	3.2	4.3	3.6	0.9	0.0	0.0	0.0	14.1	18
Mezen'	0.0	0.0	0.0	0.0	0.9	1.4	3.2	1.8	0.1	0.0	0.0	0.0	7.4	18
Minsk	0	0	0	0	3	5	4	4	1	0	0	0	17	15
Moskva	0	0	0	0	3	5	6	3	1	0	0	0	18	18
Odessa	0	0	0	0	2	6	4	3	1	1	0	0	17	18
Onega	0.0	0.0	0.0	0.0	1.1	1.5	2.9	1.9	0.2	0.0	0.0	0.0	7.6	19
Pinsk	0	0	0	1.0	2.2	3.0	5.4	4.0	1.4	0	0	0	17.0	5
Riga	0.1	0	0	0.5	2.7	2.8	2.3	4.6	1.7	0.2	0.2	0.1	15.2	12
Rostov-na-Donu	0.1	0.0	0.1	0.3	3.2	6.4	4.9	2.9	0.9	0.6	0.1	0.0	19.5	18
Saratov	0.0	0.0	0.1	0.2	2.8	5.5	5.0	3.8	0.8	0.2	0.0	0.0	18.4	17
Sevastopol'	0.0	0.0	0.0	0.0	0.6	1.6	1.5	1.4	0.8	0.5	0.0	0.0	6.4	17
Smolensk	0	0	0	0.2	3.2	3.6	4.2	2.9	1.3	0	0	0	15.4	12
Sortavala	0	0	0	0.4	1	2	4	2	0.4	0	0	0	10	31
Stalingrad	0.0	0.0	0.0	0.1	1.9	3.5	2.4	1.9	0.5	0.2	0.1	0.0	10.6	12
Tambov	0	0	0	1	4	9	7	4	2	0	0	0	27	17
Ufa	0.1	0.1	0.0	0.7	5.2	8.4	9.2	5.7	1.6	0.7	0.1	0.1	31.9	12
Uman'	0	0	0	1	8	10	9	5	1	1	0	0	35	18
Velikiye Luki	0	0	0	0	3	4	4	3	1	0	0	0	15	18
Vil'nyus	0.0	0.0	0.0	0.7	2.3	2.4	3.5	1.9	0.6	0.1	0.0	0.0	11.5	..
Vologda	0.0	0.0	0.0	0.0	2.9	3.3	4.2	2.5	0.0	0.0	0.0	0.0	12.9	18
Voronezh	0	0	0	1.2	2.5	4.7	6.2	1.8	1.2	0.2	0	0	17.8	6
Warszawa	0.0	0.0	0.3	0.9	3.2	4.1	4.2	3.6	1.2	0.1	0.1	0.0	17.7	..

H. Visibility

TABLES V-38 through V-43 give data on visibility and factors greatly affecting visibility such as fog, blizzards, smoke and haze, and hail.

TABLE V - 38

AVERAGE NUMBER OF DAYS WITH VISIBILITY LESS THAN 1 1/4 MILES AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
							0700						
Kazan'	5.9	7.0	4.7	3.3	0.3	1.0	2.7	2.2	1.8	3.7	3.0	3.9	6
Kem'	4.1	5.8	6.3	3.3	3.0	2.6	1.5	2.6	3.2	..	..	..	6
Kerch'	4.8	10.5	7.1	4.5	4.0	2.8	1.0	1.2	2.1	4.8	4.1	6.4	5
Khar'kov	..	12.5	10.5	3.5	1.0	2.6	3.2	6.3	9.0	11.8	13.0	..	3
Kiyev	5.7	7.5	6.2	2.5	1.0	0.6	0.6	1.2	2.6	7.1	11.4	9.8	6
Leningrad	2.0	7.0	8.1	6.0	2.2	1.0	1.8	2.4	3.6	..	..	..	5
Minsk	6.1	5.8	5.9	3.3	1.0	0.7	1.6	1.1	5.3	10.0	9.0	10.8	6
Moskva	12.3	12.0	17.0	8.2	3.6	1.5	5.0	5.0	4.6	8.5	11.1	11.8	3
Odessa	8.8	11.2	10.9	4.2	6.7	9.3	10.0	8.8	..	16.7	5.0	24.1	2
Penza	8.6	7.7	10.1	5.4	3.1	1.4	1.5	5.2	3.6	5.1	5.9	7.3	6
Rostov-na-Donu	6.4	10.9	10.6	5.0	1.4	3.8	2.9	3.2	4.6	8.5	8.3	7.7	6
Saratov	6.2	7.3	8.7	2.2	0.2	1.1	0.2	0.8	1.6	5.5	4.7	8.0	6
Smolensk	7.8	11.2	7.4	4.0	0.5	1.5	1.0	3.5	3.5	7.9	10.5	9.5	2
Stalingrad	7.6	10.5	9.4	1.5	1.0	0.2	0.5	0.2	0.9	3.9	5.8	7.3	6
Ufa	7.8	8.1	5.8	3.7	0.7	0.7	1.1	1.8	2.6	5.2	4.6	6.1	6
Velikiye Luki	1.6	3.8	2.9	2.4	1.3	0.7	1.7	2.8	3.0	4.0	2.6	2.5	6
Vologda	3.0	6.4	6.9	7.6	1.7	1.9	3.1	8.5	5.1	5.5	4.2	6.0	6
Voronezh	3.3	3.8	6.6	2.2	0.8	0.6	0.4	1.2	1.3	3.2	3.7	4.4	6
							1300						
Kazan'	3.1	5.1	1.3	1.0	0.4	0.3	0.6	0.9	0.5	1.6	2.7	5.4	6
Kem'	3.0	3.8	4.4	2.2	1.3	0.9	0.8	0.6	1.0	..	..	..	6
Kerch'	6.0	8.4	3.3	0.6	1.0	0.7	0.6	1.2	1.1	1.5	2.3	3.7	5
Khar'kov	..	7.0	6.5	1.5	0.0	1.7	1.0	1.0	0.6	4.5	8.8	..	3
Kiyev	7.8	4.8	2.6	0.6	0.0	0.4	0.0	0.0	0.2	2.1	7.0	8.9	6
Leningrad	4.4	5.1	5.3	2.0	1.2	0.8	0.4	1.0	1.3	..	..	..	5
Minsk	6.4	4.1	3.4	1.1	0.4	0.2	0.2	0.4	0.8	2.6	6.0	7.9	6
Moskva	12.5	9.1	5.8	3.5	0.5	0.0	0.0	0.5	0.5	2.5	9.0	9.7	3
Odessa	10.0	11.0	9.2	1.6	7.8	3.4	20.7	7.2	10.0	22.2	..	..	2
Penza	6.9	5.4	3.4	0.9	1.0	0.3	0.7	1.1	1.3	1.7	3.1	6.6	6
Rostov-na-Donu	5.7	6.6	4.7	1.0	0.5	0.6	1.1	0.7	0.4	0.5	3.4	6.5	6
Saratov	7.3	5.3	3.6	1.0	0.3	0.6	0.2	1.0	0.7	2.9	4.4	6.8	6
Smolensk	7.5	10.5	5.1	2.1	0.5	0.0	0.0	1.0	0.0	2.0	4.0	15.0	2
Stalingrad	7.8	4.7	3.4	0.7	0.8	0.5	0.6	0.6	0.2	0.3	4.1	6.6	6
Ufa	8.5	6.2	3.3	1.2	0.2	0.8	1.5	0.9	0.5	2.0	3.1	6.6	6
Velikiye Luki	3.5	3.3	1.8	0.6	0.0	0.5	0.5	0.7	0.2	0.6	1.2	4.4	6
Vologda	5.6	6.2	3.2	3.0	0.2	1.4	1.4	3.7	2.0	4.1	4.7	6.3	6
Voronezh	2.8	3.3	2.3	1.3	0.6	0.4	0.4	0.3	0.9	0.9	2.5	4.7	6
							1900						
Kazan'	4.1	5.3	2.6	1.4	0.5	0.4	0.4	1.2	0.6	1.5	3.2	2.8	6
Kem'	4.0	4.0	5.4	2.8	1.4	1.2	1.2	2.2	2.5	..	..	..	6
Kerch'	7.9	6.5	7.9	1.4	2.3	0.6	0.4	0.6	0.4	1.6	1.8	3.2	5
Khar'kov	..	5.5	7.5	2.0	0.0	0.2	1.7	1.0	4.4	4.4	8.3	..	3
Kiyev	5.6	3.9	2.2	0.6	1.1	0.4	0.0	0.8	0.0	0.9	4.0	7.8	6
Leningrad	3.3	3.0	7.0	1.8	0.6	1.0	1.0	1.2	1.6	..	..	..	5
Minsk	5.0	2.5	2.9	2.0	0.4	0.4	0.4	0.4	0.7	2.3	5.9	8.2	6
Moskva	11.6	10.1	9.6	2.5	0.0	0.0	0.5	2.0	1.0	1.5	9.5	12.0	3
Odessa	10.5	7.2	11.4	2.4	4.4	6.0	15.5	..	..	..	4.3	..	2
Penza	7.1	5.8	8.0	2.6	0.2	0.2	1.4	1.4	2.3	3.0	4.3	7.1	6
Rostov-na-Donu	4.6	4.3	3.3	1.1	1.1	0.4	1.0	0.4	0.2	1.0	1.7	3.6	6
Saratov	4.4	6.6	5.3	1.4	0.0	0.5	0.8	0.7	0.4	2.8	3.7	5.5	6
Smolensk	5.6	8.0	3.3	0.5	0.0	0.5	1.0	0.0	0.5	1.6	5.0	12.5	2
Stalingrad	4.9	4.6	3.3	1.1	0.0	0.5	0.0	0.4	0.2	0.8	1.4	3.7	6
Ufa	5.9	3.3	2.4	0.9	0.4	0.9	0.7	1.4	0.3	1.4	2.1	4.9	6
Velikiye Luki	3.7	3.4	2.0	1.1	0.4	0.2	0.2	0.2	0.4	1.7	0.9	3.2	6
Vologda	4.5	4.7	4.4	2.8	1.2	0.9	1.4	3.6	1.1	2.9	3.5	4.8	6
Voronezh	2.5	1.6	2.9	0.9	0.2	0.0	0.5	0.4	1.1	1.2	1.4	4.1	6

TABLE V - 39

AVERAGE NUMBER OF DAYS WITH VISIBILITY LESS THAN 2 1/2 MILES AT SPECIFIED HOURS

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR REC
							0700						
Kazan'	11.1	11.7	10.3	6.9	2.9	3.2	4.0	6.7	4.9	8.0	6.6	8.9	6
Kem'	7.0	9.4	10.7	6.1	4.9	4.3	5.6	6.4	6.0	..	..	..	6
Kerch'	11.2	14.2	12.4	8.8	8.1	4.1	3.0	4.0	4.0	10.8	8.8	11.7	5
Khar'kov	..	15.5	16.5	6.5	4.2	6.8	8.7	12.1	12.4	18.1	17.6	..	3
Kiyev	16.3	13.9	10.3	8.3	4.0	5.4	3.0	9.7	8.8	16.6	20.3	19.9	6
Leningrad	7.0	13.8	13.2	9.1	4.6	2.5	4.6	5.8	7.1	..	..	..	5
Minsk	14.9	12.3	11.6	9.4	13.4	1.0	3.8	5.0	12.1	16.1	14.9	16.4	6
Moskva	17.7	18.5	19.9	12.3	4.1	4.5	7.2	8.5	9.2	12.4	16.9	16.6	3
Odessa	19.2	17.4	19.3	7.7	10.7	16.8	11.0	13.2	..	16.7	15.0	24.1	2
Penza	20.1	14.9	7.5	12.8	6.8	5.0	5.7	8.7	7.7	11.2	13.3	16.4	6
Rostov-na-Donu	14.4	19.0	17.8	11.8	8.8	12.7	8.2	9.0	10.0	15.6	14.9	13.1	6
Saratov	11.3	12.2	12.3	5.7	1.9	2.0	1.7	3.3	3.3	7.8	8.6	12.0	6
Smolensk	9.9	17.0	11.1	8.1	1.0	2.0	4.2	5.0	6.0	15.1	16.5	13.5	2
Stalingrad	15.9	16.7	15.9	4.4	2.2	1.0	1.4	0.4	1.4	6.8	8.2	11.5	6
Ufa	16.1	13.3	8.0	7.0	1.2	3.3	3.3	6.8	5.3	10.2	8.7	14.6	6
Velikiye Luki	4.5	6.8	6.7	4.9	2.2	0.9	2.8	5.4	5.3	7.7	7.0	6.4	6
Vologda	16.9	17.8	18.0	13.9	6.7	5.4	10.4	15.4	10.7	16.4	16.5	10.2	6
Voronezh	7.3	7.7	10.3	3.9	1.2	0.8	0.6	2.7	3.8	5.5	7.9	7.8	6
							1300						
Kazan'	10.1	9.3	4.1	2.4	1.8	2.0	1.7	3.0	1.9	3.8	6.8	12.1	6
Kem'	6.9	8.5	8.2	4.3	2.7	2.7	2.5	2.3	2.8	..	..	..	6
Kerch'	11.8	11.8	7.9	1.3	1.4	1.4	1.9	1.6	1.5	2.8	4.9	10.3	5
Khar'kov	..	10.5	8.5	4.0	0.0	3.9	2.7	3.3	0.9	5.5	11.8	..	3
Kiyev	17.9	11.6	8.7	4.2	1.8	1.0	0.8	2.3	1.5	7.3	15.6	18.4	6
Leningrad	10.6	10.8	9.4	3.8	1.4	1.9	0.9	1.9	3.5	..	..	..	5
Minsk	14.1	9.0	6.3	4.3	1.4	1.3	0.7	1.1	3.0	6.5	11.7	15.2	6
Moskva	20.0	14.1	9.0	4.0	1.5	1.0	0.5	4.0	1.5	5.5	14.0	16.3	3
Odessa	7.0	6.4	5.1	2.0	1.7	1.7	2.0	2.7	1.4	2.6	3.4	6.0	2
Penza	19.4	11.5	13.4	12.4	13.3	10.3	10.6	10.8	10.1	13.7	18.0	18.5	6
Rostov-na-Donu	12.1	12.0	10.2	3.9	2.6	2.0	2.1	1.9	1.2	3.6	6.8	13.2	6
Saratov	12.1	10.8	6.9	2.5	0.8	1.8	1.2	2.0	1.3	4.5	6.3	11.7	6
Smolensk	12.5	13.0	7.2	3.2	1.0	0.0	1.0	2.0	1.0	5.6	13.5	20.0	2
Stalingrad	12.3	7.4	6.1	1.9	1.2	0.7	1.0	0.6	0.7	1.7	5.1	9.8	6
Ufa	14.7	11.7	7.1	2.4	1.9	2.0	2.2	4.1	1.7	5.9	6.3	12.2	6
Velikiye Luki	6.2	5.9	4.2	1.1	0.2	1.0	0.9	1.7	1.1	2.1	3.1	8.1	6
Vologda	18.5	16.3	14.6	11.0	4.0	4.8	8.0	9.0	7.8	13.0	13.7	15.9	6
Voronezh	7.1	5.8	5.5	2.5	1.1	0.7	0.7	1.4	2.1	2.3	4.5	7.7	6
							1900						
Kazan'	9.5	9.7	7.6	5.7	2.2	2.0	1.4	3.8	2.7	2.8	6.6	8.0	6
Kem'	7.3	7.3	8.4	4.4	3.4	2.5	2.2	4.3	5.3	..	..	..	6
Kerch'	14.0	12.5	11.9	4.8	3.1	0.8	0.9	1.5	1.5	2.7	4.1	7.1	5
Khar'kov	..	9.5	10.5	3.0	0.5	3.7	6.0	5.4	7.2	9.2	11.7	..	3
Kiyev	17.0	10.3	9.3	9.0	2.6	2.6	1.7	3.2	6.4	5.8	13.1	18.1	6
Leningrad	8.9	8.3	10.8	4.5	1.2	2.0	1.9	2.4	2.6	..	..	..	5
Minsk	12.2	7.9	7.7	4.0	1.2	0.9	1.1	1.2	2.8	6.6	10.6	15.0	6
Moskva	18.2	13.7	15.7	7.0	0.0	0.5	3.0	4.0	3.5	6.0	14.0	16.5	3
Odessa	17.5	11.3	18.5	6.1	7.7	8.0	25.8	..	..	..	8.6	..	2
Penza	18.4	16.9	15.1	7.3	1.4	1.3	1.7	3.0	8.6	12.2	11.5	18.3	6
Rostov-na-Donu	7.1	7.6	5.7	6.4	3.3	3.0	2.5	4.2	3.2	3.5	4.1	6.1	6
Saratov	10.4	11.0	8.9	2.6	0.5	0.7	1.7	1.7	0.9	4.0	5.3	10.1	6
Smolensk	9.7	13.2	6.5	1.5	0.0	1.0	1.0	1.5	2.5	5.2	10.6	18.5	2
Stalingrad	9.3	7.7	6.1	3.3	0.7	0.7	0.0	0.6	0.2	1.7	2.4	5.8	6
Ufa	16.6	11.8	7.0	3.4	1.2	2.3	1.2	4.9	2.4	3.9	6.5	12.9	6
Velikiye Luki	7.0	6.0	3.8	1.7	0.9	0.5	1.1	0.4	1.4	4.1	2.4	6.9	6
Vologda	18.1	15.0	13.4	10.4	5.4	3.8	0.7	9.1	7.2	14.5	16.3	16.1	6
Voronezh	5.5	4.3	7.2	2.4	0.7	0.2	1.0	1.4	2.3	2.8	2.2	6.8	6

TABLE V - 40

MEAN NUMBER OF DAYS WITH FOG*

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Arkhangel'sk	3.0	3.0	3.1	1.8	0.7	0.4	1.3	1.7	1.9	3.7	2.5	3.5	26.6	10
Astrakhan'	4.2	4.5	3.2	1.1	0.1	0.0	0.0	0.0	0.6	5.0	4.1	6.1	28.9	10
Helsinki	9	8	9	8	4	2	2	2	7	10	8	8	77	36
Kazan'	1	2	3	2	0	0	0	1	1	2	2	2	16	10
Kem'	0.7	1.3	1.8	1.3	1.6	0.7	1.6	3.0	1.9	1.7	0.7	0.5	16.8	10
Kerch'	4	5	6	2	0.9	0.3	0.4	0.5	2	5	6	5	37	10
Khar'kov	3	4	4	1	0	0	0	1	2	4	4	4	27	10
Kishinev	6.7	7.8	6.1	2.7	1.6	1.4	1.3	2.4	2.9	6.6	8.0	8.1	55.6	25
Kiyev	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.1	0.2	0.0	0.0	23.0	18
Kola	0.8	0.3	0.2	0.4	1.0	0.8	2.7	4.2	2.1	1.3	1.6	1.0	16.4	10
Kuybyshev	0.2	1.5	3.0	3.8	0.0	0.0	0.0	0.2	2.2	4.8	2.2	2.5	20.4	4
Leningrad	3.0	3.9	4.2	4.4	1.6	1.0	1.2	3.4	6.9	6.5	4.6	5.1	45.8	10
Mezen'	0.1	0.1	0.0	0.0	0.3	0.0	0.3	0.6	0.7	1.1	0.0	0.0	3.2	7
Minsk	7	6	6	2	1	1	1	2	4	7	7	7	51	10
Moskva	1.8	1.8	2.2	2.3	0.2	0.3	0.3	0.7	2.0	4.2	3.4	2.8	22.0	10
Nikolayev	5	5	4	2	1	0.3	0	0.2	1	4	6	6	35	14
Odessa	8	9	8	3	2	0	0	0	3	8	9	11	61	10
Ostrov Kolguyev	2	3	3	5	6	12	14	12	5	3	4	2	71	..
Ostrov Vaygach	6	8	9	10	10	15	19	19	12	6	4	5	123	..
Riga	4.2	3.7	7.0	5.4	1.3	1.0	0.4	1.8	4.8	6.4	5.8	5.8	47.6	10
Rostov-na-Donu	5.1	4.2	4.3	1.4	0.3	0.3	0.1	0.2	0.7	3.7	5.7	7.2	33.2	10
Saratov	6.5	6.9	7.7	4.5	0.6	0.0	0.0	0.1	1.0	5.0	7.9	7.1	47.3	10
Sevastopol'	1.0	1.2	1.3	1.3	0.4	0.1	0.0	0.0	0.0	0.3	1.1	1.1	7.8	10
Smolensk	1.2	1.3	1.9	1.2	0.3	0.1	1.2	1.5	1.6	3.2	4.1	2.6	20.2	10
Sortavala	1	0.9	3	2	2	5	0.8	0.4	3	4	3	1	20	36
Stalingrad	1.3	3.0	3.0	0.5	0.0	0.0	0.0	0.0	0.0	2.4	2.8	4.4	17.4	4
Taganrog	5	5	5	2	0.2	0	0	0	0.5	4	7	9	38	10
Tallinn	6	8	5	6	2	3	4	6	6	7	7	5	65	15
Tambov	3	3	4	2	0	1	1	1	3	7	4	5	34	9
Ufa	0.9	0.1	0.7	1.3	0.4	0.1	0.6	1.1	1.1	1.4	1.4	0.3	9.4	10
Uman'	6	7	7	2	0	1	0	1	1	6	6	9	46	10
Velikiye Luki	2	2	1	0	0	0	1	1	3	2	2	1	15	8
Vologda	0.0	0.1	0.3	1.3	0.4	0.1	0.1	1.1	1.1	1.7	0.6	0.2	7.0	10
Voronezh	1.3	2.1	2.6	2.4	0.3	0.0	0.3	0.6	0.1	2.2	3.0	3.6	18.5	8
Vyborg	2	2	2	2	0.7	0.3	0.2	0.8	3	3	3	2	21	40

* Visibility limits not defined.

TABLE V - 41

MEAN NUMBER OF DAYS WITH BLIZZARDS*
(1300 Observation)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Astrakhan'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Kazan'	2.4	1.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.5	13.8	7
Kem'	2.3	2.5	3.1	1.1	0.5	0.0	0.0	0.0	0.0	0.1	2.1	3.3	15.0	9
Khar'kov	0.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.0	9
Kiyev	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
Kola	0.7	1.6	1.4	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.5	1.2	6.5	9
Kursk	2.7	2.4	1.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	1.2	3.4	11.9	9
Leningrad	0.2	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	9
Lubny	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.4	9
Mezen'	2.0	1.4	2.2	0.6	0.1	0.0	0.0	0.0	0.1	0.3	0.9	1.3	8.9	9
Minsk	1.2	2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.7	5
Moskva	0.7	0.2	0.9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.3	0.2	3.1	8
Odessa	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9
Penza	2.1	3.3	1.5	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.6	9.5	9
Petrozavodsk	4.8	4.0	4.6	1.6	0.4	0.1	0.0	0.0	0.0	1.5	2.6	3.5	23.1	9
Pinsk**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
Riga**	1.0	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.5	8
Rostov-na-Donu	2.0	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	4.5	9
Saratov	1.1	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.2	4.3	9
Sevastopol'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
Smolensk	1.2	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.5	6.0	9
Stalingrad	2.3	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.6	5
Ufa	2.5	1.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	2.4	9.4	9
Uman'	1.3	2.2	1.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	6.8	9
Ural'sk	0.9	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	2.4	9
Velikiy Ustyug	0.9	3.3	3.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1	9.0	5
Velikiye Luki	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.5	5
Vologda	2.6	3.7	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6	1.8	11.8	9
Vyshniy Volochëk	0.9	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8	2.4	9

* Visibility limits not defined.
** 1400 observation.

TABLE V - 42

MEAN NUMBER OF DAYS WITH SMOKE AND HAZE*
(1300 Observation)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Astrakhan'	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	9
Kazan'	1.8	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.7	3.2	7
Kem'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Khar'kov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.7	9
Kiyev	0.0	0.2	0.6	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	1.4	5
Kola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Kursk	0.0	0.0	0.0	0.5	0.8	0.3	0.6	1.3	0.4	0.3	0.0	0.0	4.2	9
Leningrad	0.3	0.8	1.6	1.5	0.5	0.5	1.5	2.7	0.7	0.3	1.1	0.7	12.2	5
Mezen'	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	9
Minsk	1.6	0.3	0.7	0.2	0.0	0.0	0.0	0.2	0.2	1.5	0.4	0.9	6.0	5
Moskva	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.6	1.5	8
Odessa	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.1	0.0	0.9	9
Penza	0.1	0.3	0.0	0.1	0.3	0.6	0.4	1.6	0.1	0.7	0.1	0.0	4.3	9
Petrozavodsk	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9
Pinsk**	1.3	1.4	0.6	0.1	0.1	0.3	0.3	0.2	0.4	0.8	0.7	1.2	7.4	10
Riga**	5.0	1.7	2.4	0.6	0.4	0.2	0.3	0.8	1.1	2.0	3.1	4.4	22.0	8
Rostov-na-Donu	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.1	0.0	0.6	9
Saratov	0.0	0.0	0.0	0.0	0.0	0.8	0.4	0.7	0.0	0.0	0.0	0.0	1.9	9
Sevastopol'	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.7	5
Smolensk	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.1	1.0	9
Stalingrad	0.3	0.0	0.5	1.4	0.5	0.2	0.4	1.1	0.5	0.2	0.0	0.0	5.1	5
Ufa	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.9	0.0	0.1	0.0	0.1	1.9	9
Uman'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Ural'sk	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.7	9
Velikiy Ustyug	0.2	0.4	0.7	0.0	0.0	0.0	0.6	2.0	0.2	0.2	0.0	0.0	4.3	5
Velikiye Luki	1.1	0.9	1.6	0.5	0.0	0.2	0.7	0.2	0.5	1.4	0.2	0.7	8.0	5
Vologda	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.0	0.7	9
Vyshniy Volochëk	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.1	1.1	9

* Visibility limits not defined.
** 1400 observation.

TABLE V - 43

MEAN NUMBER OF DAYS WITH HAIL

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Astrakhan'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Helsinki	0.7	0.4	0.6	0.8	1.0	0.9	0.4	0.3	0.6	1.0	0.6	0.8	8.0	31
Kazan'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
Kem'	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.5	12
Khar'kov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Kishinev	0.0	0.0	0.2	0.2	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	1.6	31
Kiyev	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.1	0.2	0.0	0.0	1.5	12
Kola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Leningrad	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	14
Mezen'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Minsk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	5
Moskva	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
Odessa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.3	9
Penza	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9
Petrozavodsk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	9
Pinsk	0.1	0.0	0.0	0.2	0.6	0.3	0.3	0.2	0.0	0.0	0.0	0.0	1.7	13
Riga	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8
Rostov-na-Donu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	9
Saratov	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	9
Sevastopol'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.8	5
Smolensk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Sortavala	0.0	0.1	0.1	0.4	0.8	0.7	0.3	0.1	0.4	0.3	0.2	0.1	4.0	31
Stalingrad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
Ufa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Uman'	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Ural'sk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	9
Velikiy Ustyug	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5
Velikiye Luki	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	5
Vologda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
Warszawa	0.0	0.0	0.0	0.4	0.8	0.1	0.7	0.0	0.2	0.0	0.2	0.1	2.5	3

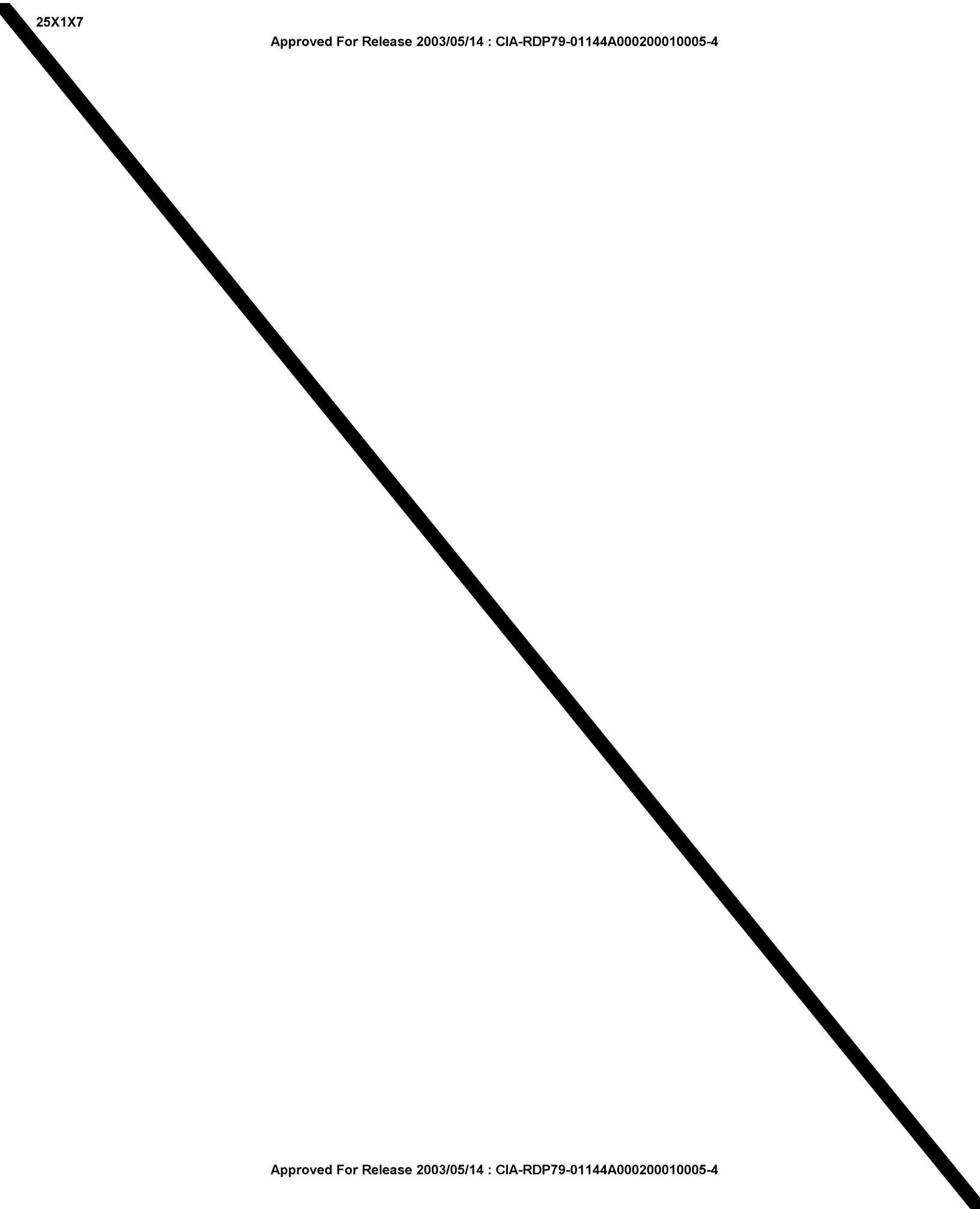


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FIGURE V-31
STATION LOCATION MAP
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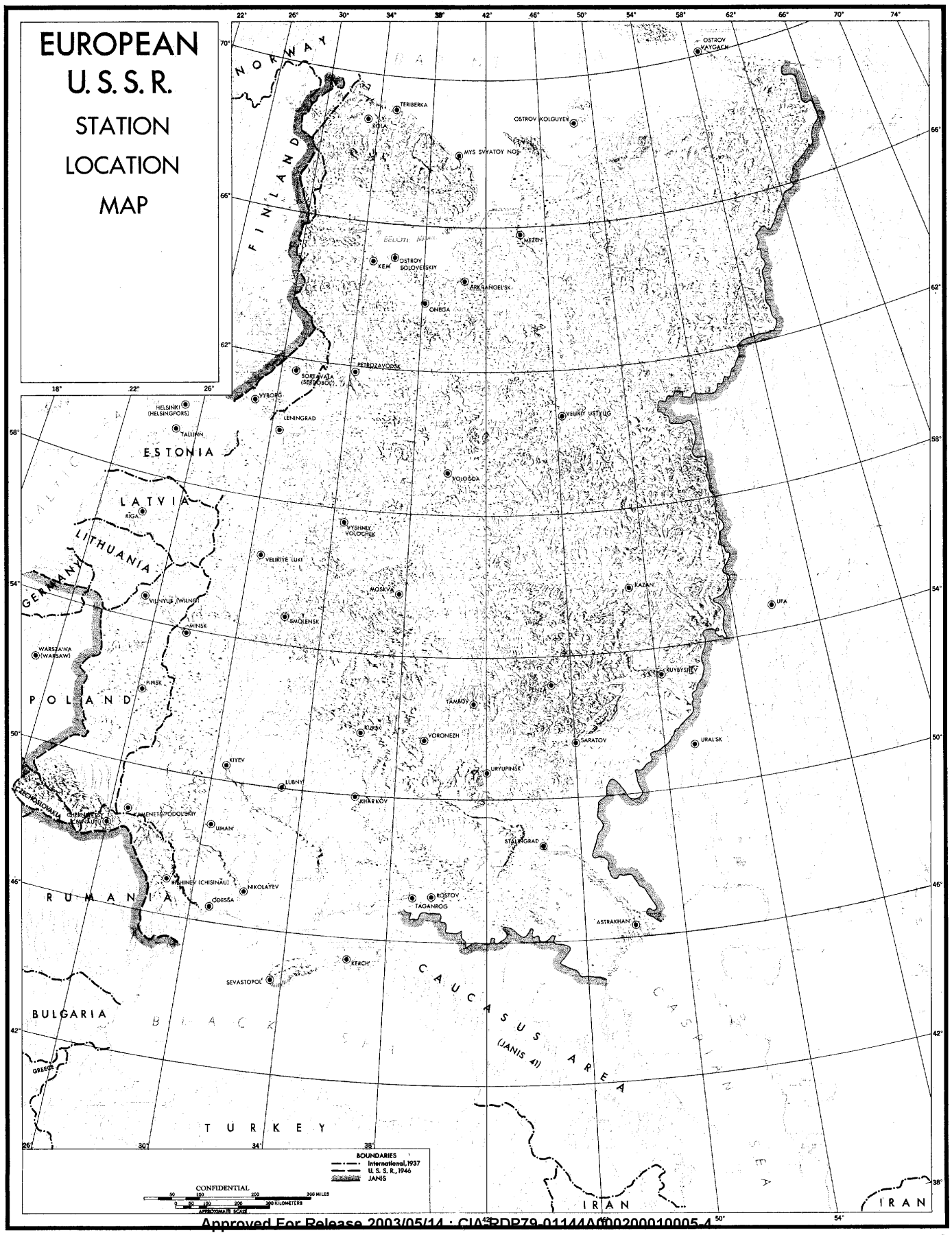

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